

QUR'AN AND SCIENCE

COMPOSED

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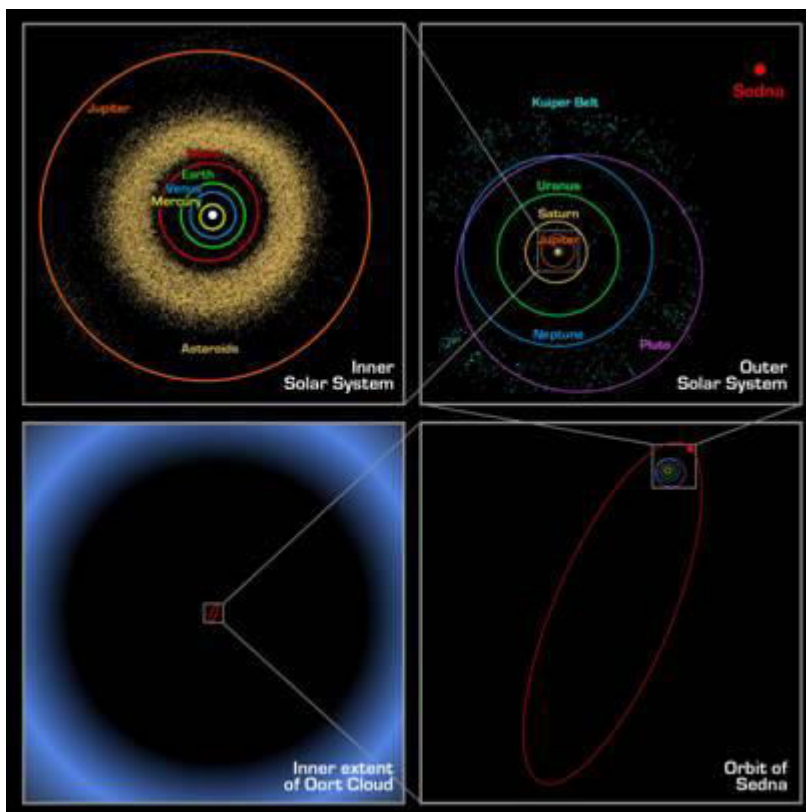
THE SKIES WITH 'WOVEN' ORBITS

"By heaven furnished with paths;" (Surat adh-Dhariyat, 7)

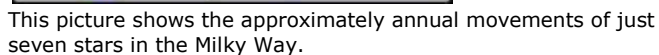
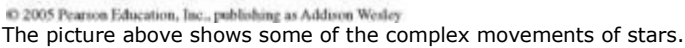
The Arabic word "*alhubuki*," translated as "**furnished with paths**" in verse 7 of Surat adh-Dhariyat, comes from the verb "*hubeke*," meaning "**to weave closely, to knit, to bind together.**" The use of this word in the verse is particularly wise and represents the current state of scientific knowledge in two aspects.

The first is this: The orbits and paths in the universe are so dense and intertwined that they constitute intersecting paths, just like the threads in a piece of fabric. The Solar System we live in is made up of the Sun, the planets and their satellites and heavenly objects in constant motion such as meteors and comets. The Solar System moves through the galaxy known as the Milky Way, which contains 400 billion stars.¹ It is estimated that there are billions of galaxies. Celestial bodies and systems revolving at speeds of thousands of kilometers an hour move through space without colliding with one another.

The science of astronomy was developed with the aim of mapping the positions and courses of stars, while astro-mechanics was developed in order to determine these complex motions. Astronomers used to assume that orbits were perfectly spherical. The fact is, however, that heavenly bodies are known to follow mathematical shapes, such as spherical, elliptical, parabolic or hyperbolic orbits. Dr. Carlo Rovelli of the University of Pittsburgh says, "***Our space in which we live is just this enormously complicated spin network.***"²

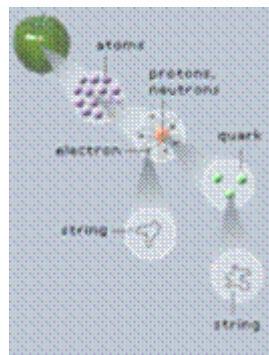
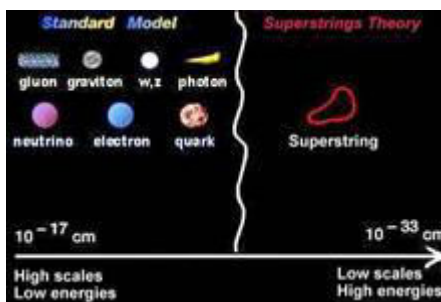
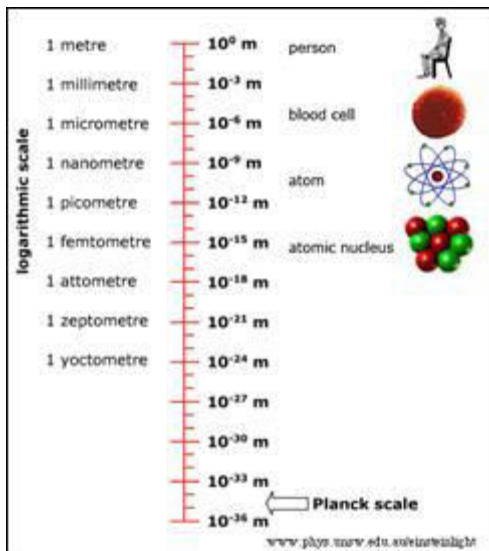


Above left; the orbits of some of the bodies in the Solar System. Based on this picture and looking clockwise, it can be seen that the Solar System itself is part of even greater orbital movements.³



A diagram of an acoustic guitar. The body is light brown with a dark sound hole. The neck is dark wood. To the right of the guitar, there are three vertical, elongated, wavy lines, each representing a standing wave on a string. Dashed lines connect the top of the guitar neck to the top of the first wave, and the bottom of the guitar body to the bottom of the third wave.

Although it is not possible to see the size of the threads in the String Theory, the only theory to bring theories such as Einstein's theory of general relativity and quantum mechanics together in a coherent way, it can still be calculated mathematically. These strings, which scientists regard as the material from which space and time are woven, are just 1.6×10^{-35} m (0.000000000000000000000000000000016 meters) in size.⁵ This, known as Planck's length, is the smallest known, being just 10^{-20} of the protons that make up the nucleus of that atom.⁶ If an atom were to be magnified to the size of the Solar System, each one of these strings would be no bigger than a tree.⁷ Bearing in mind that an atom is 100,000 times smaller than the smallest thing that can be seen with the naked eye, the minute scale of these strings can be more easily grasped.



Professor of Physics Abhay Ashtekar from the University of Pennsylvania and Professor of Physics Jerzy Lewandowski from the University of Warsaw interpret the woven appearance of space as follows in an article titled "Space and Time Beyond Einstein":

In this theory, Einstein wove the gravitational field into the very fabric of space and time... The continuum we are all used to is only an approximation. Perhaps the simplest way to visualize these ideas is to look at a piece of fabric. For all practical purposes, it represents a 2-dimensional continuum; yet it is really woven by 1-dimensional threads. The same is true of the fabric of space-time. It is only because the "quantum threads" which weave this fabric are tightly woven in the region of the universe we inhabit that we perceive a continuum. Upon intersection with a surface, each thread, or polymer excitation, endows it with a tiny "Plank quantum" of area of about 10^{-66} cm². So an area of 100 cm² has about 10^{68} such intersections; because the number is so huge, the intersections are very closely spaced and we have the illusion of a continuum.⁸

An Article in the **New York Times** seeking an answer to the question "How Was the Universe Built?" contained the following lines:

Even the tiny quarks that make up protons, neutrons and other particles are too big to feel the bumps that may exist on the Planck scale. More recently, though, physicists have suggested that quarks and everything else are made of far tinier objects: superstrings vibrating in 10 dimensions. At the Planck level, the weave of space-time would be as apparent as when the finest Egyptian cotton is viewed under a magnifying glass, exposing the warp and woof.⁹

In his book **Three Roads to Quantum Gravity**, the theoretical quantum physicist Lee Smolin devotes one chapter to "How to Weave a String" and says this on the subject:

... space may be '**woven**' from a network of loops... just like a piece of cloth is 'woven' from a network of threads.¹⁰

In his book **Our Cosmic Habitat** the cosmologist and astrophysicist Prof. Martin Rees says:

According to our present concepts, empty space is anything but simple... and on an even tinier scale, it may be a seething tangle of **strings**.¹¹

The way that Allah describes the universe as being woven paths and orbits in verse 7 of Surat adh-Dharyat shows that the Qur'an is in extraordinary agreement with science. As can be seen in a great many other instances, the way that all the information revealed in the Qur'an 1400 years ago is confirmed by modern scientific data is highly thought provoking. This perfect harmony between the Qur'an and scientific developments clearly reveals that the Qur'an is the word of our Lord, the creator of and He who knows best about all things. In one verse Allah states:

"Will they not ponder the Qur'an? If it had been from other than Allah, they would have found many inconsistencies in it." (Surat an-Nisa, 82)



The University of Pittsburgh physicist Carlo Rovelli presents a model woven like a web in order to represent the microscopic architectural structure of the universe.

1 <http://casswww.ucsd.edu/public/tutorial/MW.html>

2 George Johnson, "How Is the Universe Built? Grain by Grain", **The New York Times**, 7 December 1999; <http://www.nytimes.com/library/national/science/120799sci-planck-length.html>

3 http://upload.wikimedia.org/wikipedia/commons/1/12/Oort_cloud_Sedna_orbit.jpg

4 <http://theory.uwinnipeg.ca/users/gabor/symmetry/slide22.html>

5 http://www.phys.unsw.edu.au/einsteinlight/jw/module6_Planck.htm

6 <http://www.physlink.com/Education/AskExperts/ae281.cfm>

7 <http://www.pbs.org/wgbh/nova/elegant/everything.html>

8 Abhay Ashtekar, Jerzy Lewandowski, "Space and Time Beyond Einstein", **Rzeczpospolita**, April 2002; http://gravity.psu.edu/people/Ashtekar/articles/Rzeczpospolita_SaTBE.html

9 George Johnson, "How Is the Universe Built? Grain by Grain", **The New York Times**, 7 December 1999; <http://www.nytimes.com/library/national/science/120799sci-planck-length.html>

10 Lee Smolin, **Three Roads to Quantum Gravity**, Basic Books, New York, 2001, p. 186.

11 Martin Rees, **Our Cosmic Habitat**, Princeton University Press, 2001, p. 107.

THE TSUNAMI EFFECT IN THE PROPHET MOSES (PBUH)'S PARTING OF THE SEA

So We revealed to Moses, 'Strike the sea with your staff.' And it split in two, each part like a towering cliff. (Surat Ash-Shu'ara', 63)

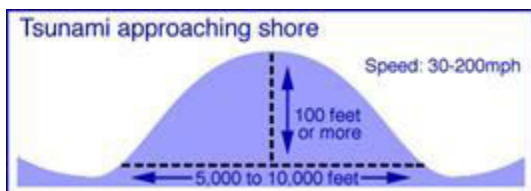
The Egyptian monarchs known as the pharaohs regarded themselves as divine in the polytheistic, superstitious religion of ancient Egypt. Allah sent the Prophet Moses (pbuh) as an envoy to the people of Egypt at a time when they preferred their own superstitious beliefs to the true faith and when they had enslaved the Israelites. However, despite the Prophet Moses (pbuh)'s invitation to the true faith, the ancient Egyptians and Pharaoh and his court in particular, refused to abandon their pagan beliefs. The Prophet Moses (pbuh) told Pharaoh and his court the things they ought to avoid and warned them of the wrath of Allah. But they rebelled and falsely accused the Prophet Moses (pbuh) of madness, sorcery and mendacity. Although various tribulations were inflicted on Pharaoh and his people, they still did not submit to Allah; they refused to accept Allah as the one and only God. They even held the Prophet Moses (pbuh) responsible for what had befallen them and sought to exile him from Egypt. At this, Allah told the Prophet Moses (pbuh) and those with him to leave where they were:

We revealed to Moses: 'Travel with Our slaves by night. You will certainly be pursued.'
Pharaoh sent marshals into the cities: 'These people are a small group and we find them irritating and we constitute a vigilant majority.' **We expelled them from gardens and springs, from treasures and a splendid situation. So it was! And We bequeathed them to the tribe of Israel. So they pursued them towards the east. (Surat Ash-Shu'ara', 52-60)**

As revealed in the Qur'an, when the two peoples came together at the end of this chase, Allah rescued the Prophet Moses (pbuh) and the believers with him by parting the sea, while destroying Pharaoh and his people. Allah's assistance to the believers is revealed as follows in the Qur'an:

So We revealed to Moses, 'Strike the sea with your staff.' And it split in two, each part like a towering cliff. And We brought the others right up to it. We rescued Moses and all those who were with him. Then We drowned the rest. There is certainly a Sign in that yet most of them are not believers. Truly your Lord is the Almighty, the Most Merciful. (Surat Ash-Shu'ara', 63-68)

The Arabic word "*idrib*," translated as "**strike**" in verse 63 of Surat ash-Shuara, also means "to open, divide or separate." In the light of this expression and what happened subsequently, the verse may be a reference to the formation of tsunami waves. (Allah knows best.) Since tsunami waves cause large amounts of water to shift and thus give way to the emergence of earth on shallow grounds. In the time of the Prophet Moses (pbuh), as with the tsunami waves the waters might have pulled back some hundreds of meters and this might have caused the parting of the sea. (Allah knows best.)



In addition, the waters are compared to mountains in the above verse. The waters collected in a tsunami form a giant peak¹ and resemble a mountain seen from below. As with mountains, the base of the tsunami is very broad and strong. In tsunamis, the depth of the water declines while the mass of the wave expands and rises in height. Tsunamis may be up to 30m high.² It is therefore very significant how the waters are likened to a mountain.



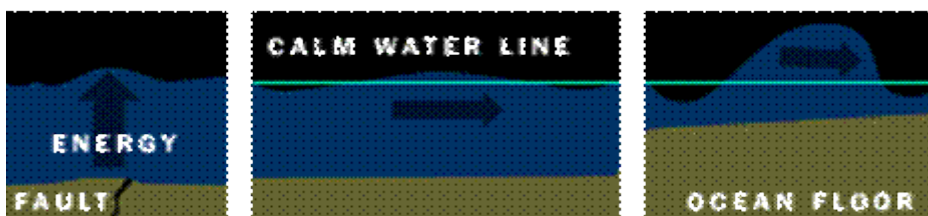
Tsunamis are very different to the waves we are familiar with, and are a movement of the entire depth of water. This is not generally restricted to the surface, and may stretch for several kilometers. They thus possess high levels of energy and move very fast.³ Scientific statements say this about tsunamis:

In fact the tsunami crest is just the very tip of a vast mass of water in motion...Wind-driven waves and swells are confined to a shallow layer near the ocean surface, a tsunami extends thousands of feet deep into the ocean.... Survivors of tsunami attacks describe them as dark "walls" of water. Impelled by the mass of water behind them, the waves bulldoze onto the shore and inundate the coast...

... The contours of the seafloor and coastline have a profound influence on the height of the waves -- sometimes with surprising and dangerous results. During the 1993 tsunami attack on Okushiri, Japan, the wave "run up" on the coast averaged about 15 to 20 meters (50 - 65 feet). But in one particular spot, the waves pushed into a V-shaped valley open to the sea, concentrating the water in a tighter and tighter space. In the end, the water ran up to 32 meters (90 feet) above sea level, about the height of an 8-story office building. ⁴

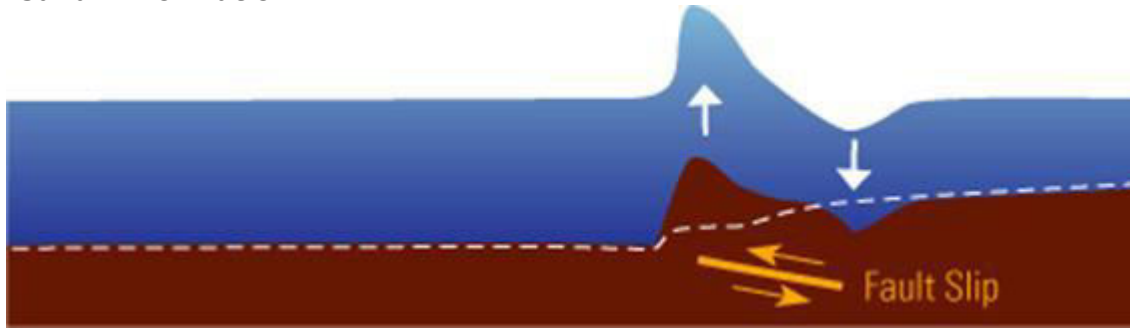
The way that the past events described in the Qur'an are in complete agreement with present-day historic evidence and scientific advances, is without doubt one of the great miracles of the Qur'an. The way the waters parted when the Prophet Moses (pbuh) and his companions needed to cross and how they closed again over the heads of Pharaoh and his army are clear instances of the way Allah assists believers. Indeed, the Prophet Moses (pbuh) displayed an excellent example of proper moral values by trusting in Allah in that most difficult moment:

And when the two hosts came into sight of one another Moses's companions said, 'We will surely be overtaken!' He said, 'Never! My Lord is with me and He will guide me.' (Surat Ash-Shu'ara', 61-62)



The force applied to the sea floor causes mountainous waves to form by causing the water to rise up vertically.

Tsunami Formation:



Stage 1 —

Beginning: If the tsunami acts like an earthquake, the sea floor is moved up or down. As a result the mass of water moves up or down.



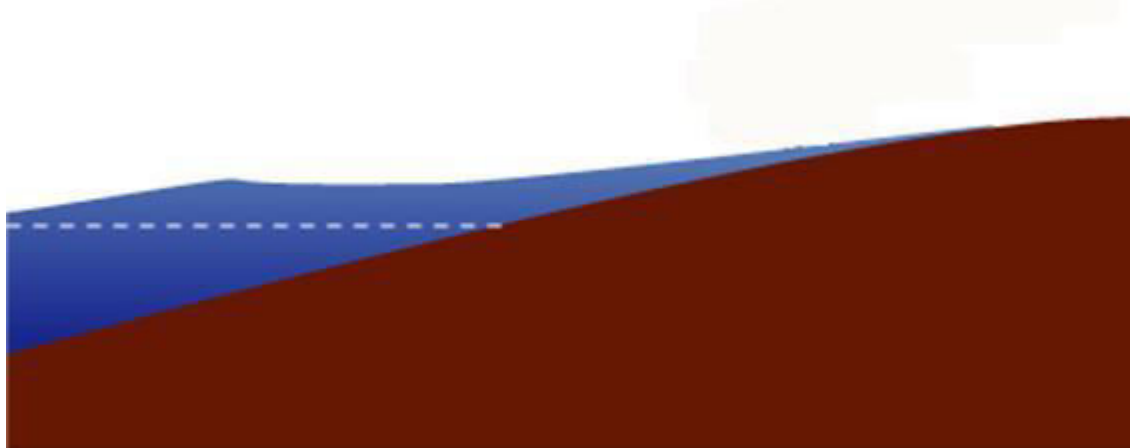
Stage 2 —

Separation: Within a few minutes, the tsunami that starts to form divides in two, one part moving toward the depths of the ocean, the other reaching the coast.



Stage 3 —

Elevation: The tsunami wave reaching the shore rises up like a huge wave when it reaches the land.



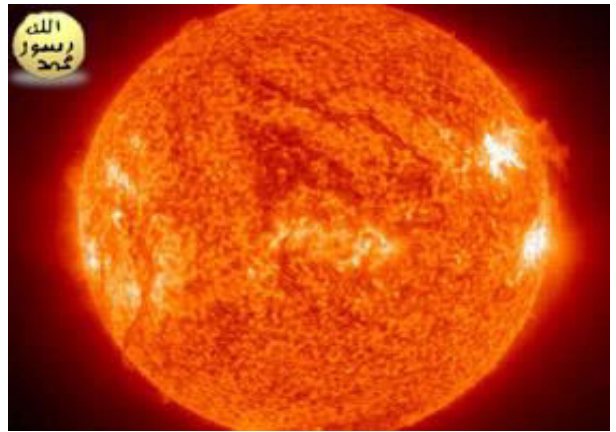
Stage 4- Wave impact: The leading wave becomes pointed and appears to rise even higher. The first part of the wave to hit the land is convex in shape, which is why the water initially seems to be pulling away from the land.

1. <http://en.wikipedia.org/wiki/Tsunami>
2. <http://www.eies.itu.edu.tr/sumatra/sumatra.htm>
3. <http://www.crystalinks.com/tsunami.html>
4. <http://www.wnet.org/savageearth/tsunami/index.html>

THE SUN WILL EVENTUALLY EXPIRE

And the Sun runs to its resting place. That is the decree of the Almighty, the All-Knowing. (Surah Ya Sin, 38)

The Sun has been emitting heat for around 5 billion years as a result of the constant chemical reactions taking place on its surface. At a moment determined by Allah in the future, these reactions will eventually come to an end, and the Sun will lose all its energy and finally go out. In that context, the above verse may be a reference to the Sun's energy one day coming to an end. (Allah knows the truth.)



The Arabic word "**limustaqarrin**" in the verse refers to a particular place or time. The word "**tajree**" translated as "runs," bears such meanings as "to move, to act swiftly, to move about, to flow." It appears from the meanings of the words that the Sun will continue in its course in time and space, but that this motion will continue until a specific, predetermined time. The verse "**When the sun is compacted in blackness,**" (Surat at-Takwir, 1) which appears in descriptions of Doomsday, tells us that such a time will be coming. The specific timing is known only to Allah.

The Arabic word "**taqdeeru**," translated as "decree" in the verse, includes such meanings as "to appoint, to determine the destiny of something, to measure." By this expression in verse 38 of Surah Ya Sin, we are told that the life span of the Sun is limited to a specific period, one ordained by Allah. Other verses of the Qur'an on the subject read:

Allah is He Who raised up the heavens without any support – you can see that – and then established Himself firmly on the Throne. He made the Sun and Moon subservient, each running for a specified term. He directs the whole affair. He makes the Signs clear so that hopefully you will be certain about the meeting with your Lord. (Surat ar- Ra'd, 2)

He makes night merge into day and day merge into night, and He has made the Sun and Moon subservient, each one running until a specified time. That is Allah, your Lord. The Kingdom is His. Those you call on besides Him have no power over even the smallest speck. (Surah Fatir, 13)

He created the heavens and the earth with truth. He wraps the night around the day and wraps the day around the night, and has made the Sun and Moon subservient, each one running for a specified term. Is He not indeed the Almighty, the Endlessly Forgiving? (Surah az-Zumar, 5)

The use of the word "**musamman**" in the above verses shows that the life span of the Sun will run for a "specified term." Scientific analysis regarding the end of the Sun describes it as consuming 4 million tons of matter a second, and says that the Sun will die when that fuel has all been consumed.¹ The heat and light emitted from the Sun is the energy released when matter is consumed as hydrogen nuclei turn into helium in the nuclear fusion process. The Sun's energy, and therefore its life, will thus come to an end once this fuel has been used up. (Allah knows the truth.) A report titled "The Death of the Sun" by the **BBC News** Science Department says:

... The Sun will gradually die. As a star's core crashes inwards, it eventually becomes hot enough to ignite another of its constituent atoms, helium. Helium atoms fuse together to form carbon. When the helium supply runs out, the centre collapses again and the atmosphere inflates. The Sun isn't massive enough to fully re-ignite its core for a third time. So it goes on expanding, shedding its atmosphere in a series of bursts... The dying core eventually forms a white dwarf - a spherical diamond the size of the Earth, made of carbon and oxygen. From this point on the Sun will gradually fade away, becoming dimmer and dimmer until its light is finally snuffed out. ²

A documentary, also called "The Death of the Sun," broadcast by **National Geographic TV**, provides the following description:

It (the Sun) generates heat and sustains life on our planet. But like humans, the Sun has a limited lifespan. As our star ages, it will become hotter and expand, evaporating all of our oceans and killing all life on planet Earth... The Sun will get hotter as it ages and burns fuel faster. Temperatures will increase, eventually wiping out animal life, evaporating our oceans and killing all plant life... the Sun will swell and become a red giant star, swallowing up the nearest planets. Its gravitational pull will lessen and perhaps allow Earth to escape. By the end, it will shrink into a white dwarf star, emitting a weak glow for hundreds of billions of years. 3

Scientists have only recently unravelled the structure of the Sun and discovered what goes on inside it. Before that, nobody knew how the Sun obtained its energy or how it emitted heat and light. The way that such a giant mass of energy would one day consume all its energy and expire was revealed 1400 years ago in the Qur'an shows the presence of a sublime knowledge. That knowledge belongs to our Lord, Whose knowledge enfolds all things. Another verse of the Qur'an reveals:

... My Lord encompasses all things in His knowledge so will you not pay heed? (Surat Al-An'am, 80)

1. <http://en.wikipedia.org/wiki/Sun>

2. <http://www.bbc.co.uk/science/space/stars/death/index.shtml>;

3. "Death of the Sun", National Geographic Channel, 20 Mart 2006, director: Rabinder Minhas, bölüm no. 25, sezon no. 3.

MODERN-DAY RADAR TECHNOLOGY

We gave Dawud great favor from Us: 'O mountains and birds! echo with him in his praise!' And We made iron malleable for him: (Surah Saba', 10)

We gave Sulayman understanding of it. We gave each of them judgment and knowledge. We subjected the mountains to Dawud, glorifying, and the birds as well. This is something We are well able to do. (Surat al-Anbiya', 79)

So We subjected the wind to him to blow at his command, softly, wherever he directed. (Surah Sâd, 36)

The above verses refer to the superior attributes bestowed on the Prophets David (pbuh) and Solomon (pbuh), and say that each was given knowledge from the Presence of Allah. The terms referring to the knowledge given to these Prophets in the verses may be a reference to present-day radar technology, which works by the reflection of electromagnetic waves. (Allah knows the truth.) The word "**awwibee**" in verse 10 of Surah Saba', translated as "**echoing**" in the verse and meaning "**the return or reiteration of sound,**" is reminiscent of echo-based radar technology.

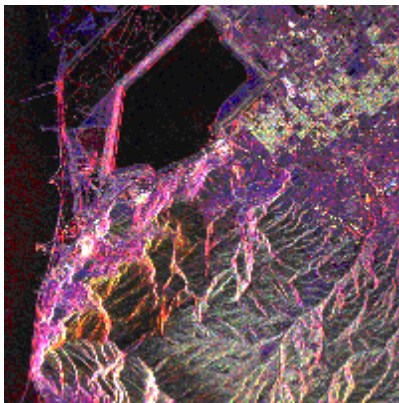
Radar is a location device used to determine the location, speed and direction of mobile or stationary objects, and works by reflecting micro-wave.¹ The operating principle of radar bears a close similarity to the reflection of sound. For example, someone shouting in a valley or a cave, hears his own voice being reflected back to him. If we know how fast sound travels through the air, we can calculate the distance and general direction of the object it bounces off.

In the radar system, electromagnetic energy signals are used in very much the same way. Signals with a microwave frequency are emitted toward an object and then return after being reflected by it. This part of the signal returning to the radar is called an "echo." Radar devices use this echo to determine the direction and distance of the object doing the reflecting.² Since they also use electromagnetic energy, radio, television and the human eye bear a close resemblance to radar systems, though their frequencies are different. In addition, radar uses the reflected energy known as the "echo," rather than directly transmitted energy as in these examples.³ Reflected signals are converted into numerical values by the radar receiver and recorded as data on "echo stores." Finally, the data are processed and converted into images.⁴

The use of the Arabic verb "**alanna**," meaning "**We have made malleable**," in verse 10 of Surah Saba' is again exceedingly wise. Because iron is still described as soft, or malleable, despite being physically very hard. This form of iron, known as "**soft magnetic iron**" because of its magnetic properties is particularly used in radar and satellite technology.⁵ Soft iron is used because it strengthens the magnetic field and can be opened and closed as desired.

"The wind being told to blow at his command..." as we are told of the Prophet Solomon (pbuh) in verse 36 of Sura Sad, may be a reference to electromagnetic signals being transmitted as desired in the air thanks to the use of soft iron. (Allah knows the truth.)

The radar imaging used today scans the world at every moment and developments taking place on the earth can thus be constantly monitored. In addition, data can be collected about physical features on earth, such as mountains, glaciers and the oceans, and also about man-made objects, such as houses, bridges and cars. The way that the operating principle and material used in this advanced technology was noted in the Qur'an 1400 years ago shows that the Qur'an is the revelation of our Lord, Who created past and future as a single moment and Who is unfettered by time.



A radar image taken by satellite. This image, formed using microwaves, shows a mountainous region of Salt Lake City, Utah.



An image of Warsaw in Poland obtained using radar.



Radar used to control the traffic in New Zealand.



Air radar used to identify powerful storms and track their movements.



This 27-meter-high radar facility, reminiscent of a fly's eye, scans the sky above northern Alaska and is used as an early warning system against ballistic missiles.



This radar facility, constructed in Florida in the 1960s, was used to identify ballistic missiles launched from submarines.

1 http://rst.gsfc.nasa.gov/Sect8/Sect8_1.html

2 <http://tr.wikipedia.org/wiki/Radar>

3 <http://tpub.com/neets/book11/46.htm>

4 <http://southport.jpl.nasa.gov/cdrom/sirced03/cdrom/DOCUMENT/HTML/TEACHERS/MODULE02/MOD2SECB.HTM>

5 <http://physics.bu.edu/~duffy/PY106/MagMaterials.html>

THE CONTRACTION MOTION THAT FACILITATES BIRTH

The pains of labor drove her to the trunk of a date-palm. She said, 'Oh if only I had died before this time and was something discarded and forgotten!' A voice called out to her from under her, 'Do not grieve! Your Lord has placed a small stream at your feet. Shake the trunk of the palm towards you and fresh, ripe dates will drop down onto you.' (Surah Maryam, 23-25)

Modern medicine shows that squeezing an object during labor facilitates the baby's downward passage through the birth canal. The muscles used during contraction are the same as those that propel the baby outside the womb. Various methods are employed to achieve this, such as pulling on a cord suspended from the ceiling or on arms attached to the two sides of the bed or else holding onto and squeezing someone's hand.

A U-shaped bar, known as a "squat bar," mounted onto the bed during labor is used for that end. Pulling on this bar facilitates the baby's leaving the womb, shortens the length of the birth canal, widens the mouth of the womb and reduces the need for many other devices and techniques during labor.¹

This bar helps the mother's squatting motions as she pulls herself up and down on it. It also means the mother remains immobile as the baby emerges.² In this position, the muscles needed to move the baby down the birth canal expend the minimum amount of energy. In addition, with the expansion of the pelvic bone, 30% more room is made available for the baby to pass through. With the expansion and contraction movement, the body's propulsive force is raised to the highest level and the baby is able to move smoothly during the birth process.

There is great wisdom in the way that, by means of Allah's angels, Hazrat Maryam shook the branches of the palm tree toward her. The Arabic word "huzzee" means "to shake fast, to move or to rock." In addition to dates facilitating birth and having nutritious properties, pulling the branches toward one to

shake them and then letting them pull back in another movement also facilitates birth. This technique applied in our own day, is one of the proofs that Allah supported Hazrat Maryam (pbuh) with His compassion and that the Qur'an is the word of our Lord, the Omniscient.

[1](http://pregnancy.about.com/cs/laborbasics/a/squatting.htm) <http://pregnancy.about.com/cs/laborbasics/a/squatting.htm>

[2](http://parenting.ivillage.com/pregnancy/plabor/0,,midwife_8swr,00.html?iv_arrivalSA=1&iv_cobrandRef=0&iv_arrival_freq=1&pba=adid=16657989) http://parenting.ivillage.com/pregnancy/plabor/0,,midwife_8swr,00.html?iv_arrivalSA=1&iv_cobrandRef=0&iv_arrival_freq=1&pba=adid=16657989

THE SOLIDITY OF THE ATOM AND ELECTRON ORBITS

"You will see the mountains you reckoned to be solid going past like clouds –the handwork of Allah Who gives to everything its solidity. He is aware of what you do." (Surat an-Naml, 88)

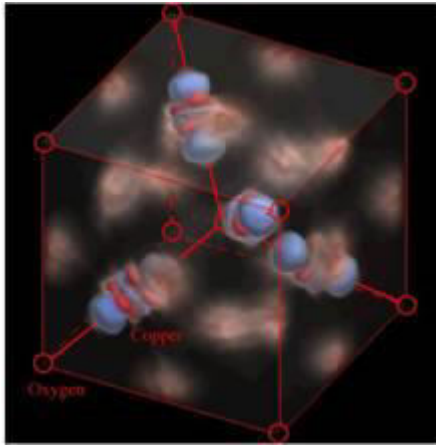
The above verse may be a reference to the strength of the atom, the building block of all matter, and to the orbit of the electrons in the atom. Looked at in the context of atoms, Allah's use of the term "to everything its solidity" can be interpreted as referring to the solidity of the atom, which cannot be broken even if struck with a sledgehammer (Allah knows the truth). That is because objects themselves are not perfectly solid, only the atom is.

For example, if a vase is shattered, only the atoms that make it up remain solid. A car may turn into a pile of junk after an accident, or a skyscraper may collapse after an explosion, but the situation remains the same whether it is a delicate flower or a tough piece of metal: the atoms in matter do not fall apart or stray off-orbit. Therefore, even the most fragile-looking piece of matter is actually very solid in its Creation. The wisdom behind the reference to "everything" in the verse may well lie in the fact that the atom is the basis of all matter.

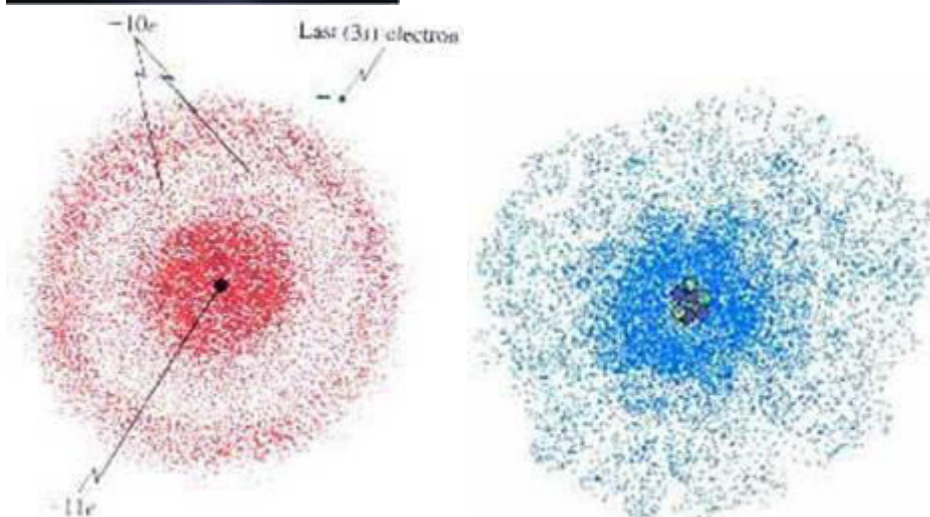
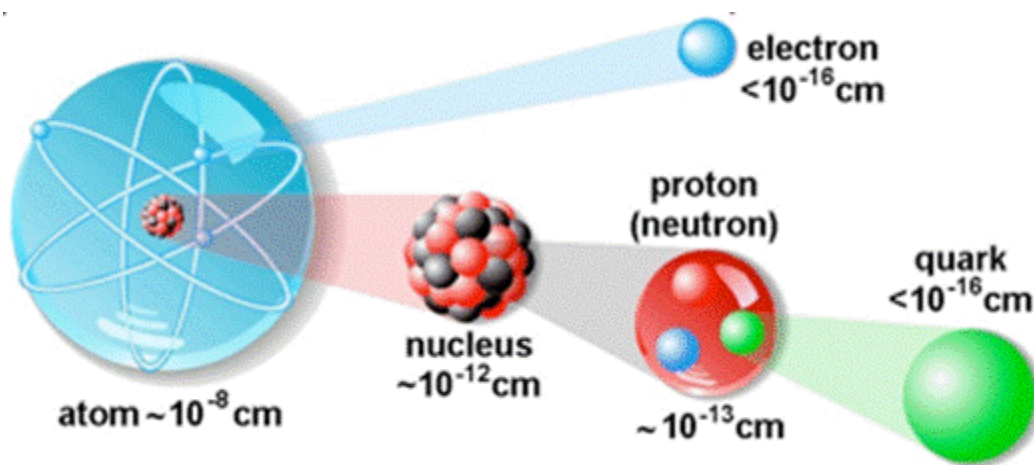
Very solid structures are even to be found in nuclear bombs, which work by splitting atomic bonds. In nuclear fission, the atomic nucleus is split and it is divided into two smaller atoms. In the nuclear fusion technique, two small atoms are combined together to make one larger atom. Solar energy, for instance, is manufactured in this way, by hydrogen being turned into helium. As a result, there is a constant cycle from matter to energy and from energy to matter, and there is a general solidity in the universe at the atomic level.

The verse may also be indicating the clouds of electrons around atomic nuclei, whose movement is likened to "**mountains... going past like clouds.**" (Allah knows the truth.) The electrons in their orbits in the atoms that make up mountains resemble a cloud in appearance in terms of their constant and rapid motion around the nucleus. Indeed, the orbiting electrons in the atom are described as an "electron cloud" in the scientific literature.[1](#) The concept of an electron cloud is used in molecular physics, chemistry and quantum chemistry to describe the way they move in a manner similar to a cloud around the atomic nucleus.[2](#)

It is impossible to understand the structure of the atom and establish this cloud-like appearance of electrons without such high-tech devices as electron microscopes. The fact that the information provided 1400 years ago in the Qur'an regarding sciences requiring advanced technology to be established is always completely accurate is one of the miracles of the Qur'an. It is also a manifestation of our Lord's titles of **Alim** (He Who knows all things), **Fatir** (the Creator) and **Halik** (He Who will see and arrange the existence of all things and Who creates accordingly, He Who creates from nothing).



The illustration depicts the movement of electrons resembling clouds that constitute matter by joining atoms together, literally like glue.[3](#)



The rapid movement of electrons around the atom leads to their resembling clouds.

¹ Henrik Stapelfeldt, "Electrons Frozen in Motion", *Nature*, 16 December 2004, Vol. 432, pp. 809-810; Adrian Cho, "Whispering Atoms", *New Scientist*, 16 September 2000, Vol. 2256, p. 15; Albert Stolow, David M. Jonas, "Multidimensional Snapshots of Chemical Dynamics", *Science*, 10 September 2004, Vol 305, no. 5690, pp. 1575-1577.

² http://en.wikipedia.org/wiki/Electron_cloud

³ <http://www.abc.net.au/quantum/stories/s116324.htm#transcript>

A RED ROSE IN THE SKY: THE ROSETTE NEBULA

When the Heaven shall be cleft asunder, and become rose red, like stained leather. (Surat ar-Rahman, 37)

The Arabic expression translated above as "**become rose red, like stained leather**" is "*verdeten ke eddihani*." This term compares an image appearing in the sky to a red rose. This description bears a close similarity to red celestial bodies with a plicate appearance, especially the "Rosette Nebula."

Nebula is the name given to cloud-like masses of gas in space. Before they become nebulae they are stars, and since these stars are very large, they release gasses into space because of their high internal pressure and temperatures. These eruptions of gas are very large and fast. These gasses then coalesce to form a gas cloud, with a temperature of more than 15,000 °C.¹



One type of nebula is known as the "Rosette Nebula" because of its resemblance to a rose. The Rosette Nebula is also a vast cloud of gas and seems to have an area five times greater than that of the full moon.² Its true diameter is estimated at 130 light years.³

A team led by Leisa Townsley, a senior Penn State University researcher in the field of astronomy and astrophysics, examined the Rosette Nebula using the Chandra X-ray telescope. They imaged hundreds of stars in the Rosette Nebula and determined that by crashing into one another stars produce gas at temperatures of 6 million degrees. Townsley describes what she saw:

A ghostly glow of diffuse X ray emission pervades the Rosette Nebula and perhaps many other star-forming regions throughout the Galaxy. We now have a new view of the engine lighting the beautiful Rosette Nebula and new evidence for how the interstellar medium may be energized."⁴

The existence of this body seen in the illustrations can only be confirmed by high-tech observation equipment. This state of affairs regarding the skies noted in the Qur'an is in great agreement with the findings of present-day astronomy. In one verse of the Qur'an we are told:

You do not engage in any matter or recite any of the Qur'an or do any action without Our witnessing you while you are occupied with it. Not even the smallest speck eludes your Lord, either on earth or in heaven. Nor is there anything smaller than that, or larger, which is not in a Clear Book. (Surah Yunus, 61)

¹ http://tr.wikipedia.org/wiki/Nebula_%28astronomi%29

² <http://antwrp.gsfc.nasa.gov/apod/ap010214.html>

³ http://en.wikipedia.org/wiki/Rosette_Nebula

⁴ http://chandra.harvard.edu/press/01_releases/press_090601wind.html; Chandra X-Ray Observatory, Penn State University Press, 6 September, 2001.

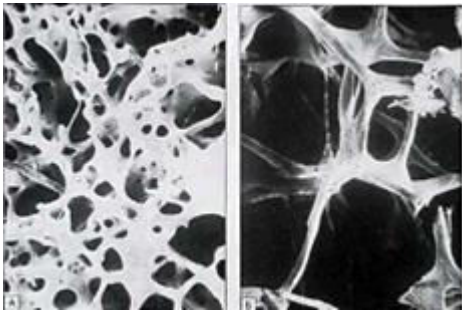
BONE LOSS IN OLD AGE

"And said, 'My Lord, my bones have gone frail and my head is crowned with white, but in calling on You, My Lord, I have never been disappointed'."
(Surah Maryam, 4)

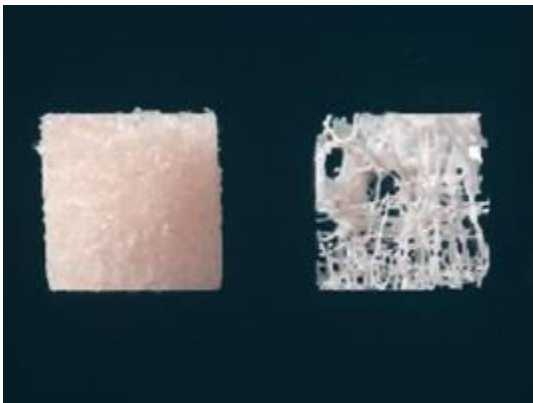
The Arabic word "wahana" in verse 4 of Surah Maryam means "relaxed, weakened or insufficient." The use of this word in the context of aging and changes taking place in the bones is most wise. Bone scanning performed taking detailed measurements using modern technology makes it possible to image the disease known to the medical world as "osteoporosis," or bone loss.

Osteoporosis is a metabolic disease that leads to a loss of bone mass. The word osteoporosis come from the combination of the words *osteo* (bone) and *porosis* (full of holes). Bone, which rather resembles a honey comb, stores significant quantities of essential minerals such as calcium. Bone mass begins to gradually decline from around the age of 40. In its more advanced stages, this disease, which is mainly seen in the elderly and manifests itself as a loss of bone tissue mass, leads to easy bone breakage.

Bearing in mind that x-rays were only discovered in the 1890s, it is clear how difficult obtaining any information regarding the bones would have been. The fact that the Qur'an contains such information, which is in exact agreement with modern medical science, is one of the clear signs that the Qur'an has come down from the presence of Allah.

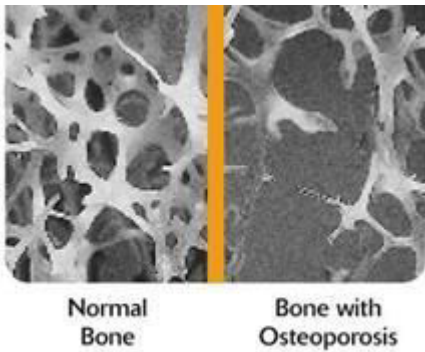


Healthy bone tissue on the right, and bone tissue subject to wasting on the left.

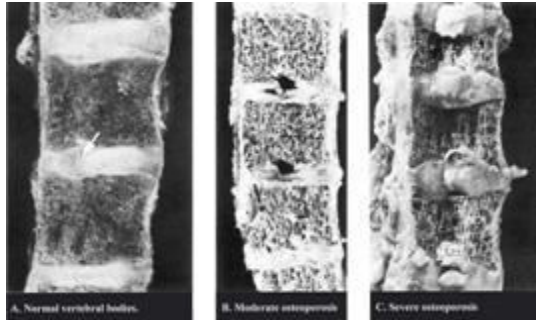


1

Bone tissue from a healthy 30-year-old on the left, and weaker bone tissue from a 79-year-old on the right.



2



3

<http://www.bindevaev.au.dk/research-bone.htm>

http://nihseniorhealth.gov/osteoporosis/whatisosteoporosis/normalvsosteo_popup.html

<http://www.emirateshospital.ae/English/News/News19.htm>

THE HELIO-CENTRIC SYSTEM

He created the heavens and the Earth with truth. He wraps the night around the day and wraps the day around the night, and has made the Sun and Moon subservient, each one running for a specified term. Is He not indeed the Almighty, the Endlessly Forgiving? (Surah az-Zumar, 5)

In the above verse the movement of the Earth is described by the word "yukawwiru," which comes from root verb "takwir," meaning "to cover up a spherical body," in the way that the rotation of the Earth gives rise to night and day, like the winding of a turban. In addition to the spherical shape of the Earth the word is also the most accurate expression of its movement around the Sun. Because of the Earth's spherical shape and its movement around the Sun, the Sun always illuminates one side of the Earth while the other is in darkness. The side in shadow is shrouded by the darkness of night, to be replaced by the brightness of day when the Sun rises. The positions of the Sun and Earth are revealed as follows in Surah Ya Sin:

And the Sun runs to its resting place. That is the decree of the Almighty, the All-Knowing. And We have decreed set phases for the Moon, until it ends up looking like an old palm spathe. It is not for the Sun to overtake the Moon nor for the night to outstrip the day; each one is swimming in a sphere. (Surah Ya Sin, 38-40)

The movements of the Sun and Moon in verse 40 of Surah Ya Sin are described by the Arabic word "yasba^{hoona}," meaning "flowing, passing or swimming." This word refers to an action performed by someone on their own. Someone acting according to this verb continues to perform it alone, with no intervention from anyone else. The above verses may therefore be referring to the Sun's independent movement in the universe, independent of any other celestial body. (Allah knows the truth.) It is impossible for us to see or follow the movement of the Sun with our own eyes. It is only possible to

determine that movement using special technological equipment. As stated in verse 39 of Surah Ya Sin, in addition to rotating around its own axis once every 26 days, the Sun also moves through its own course.

The verse also reports that the Sun is not allowed to "overtake the Moon," and the Qur'an thus states that the Sun and Moon do not revolve around the same body, as astronomers put it. At the same time, the verse makes it clear that there is no connection between the motion responsible for night and day and the movement of the Sun and Moon. (Allah knows the truth.)

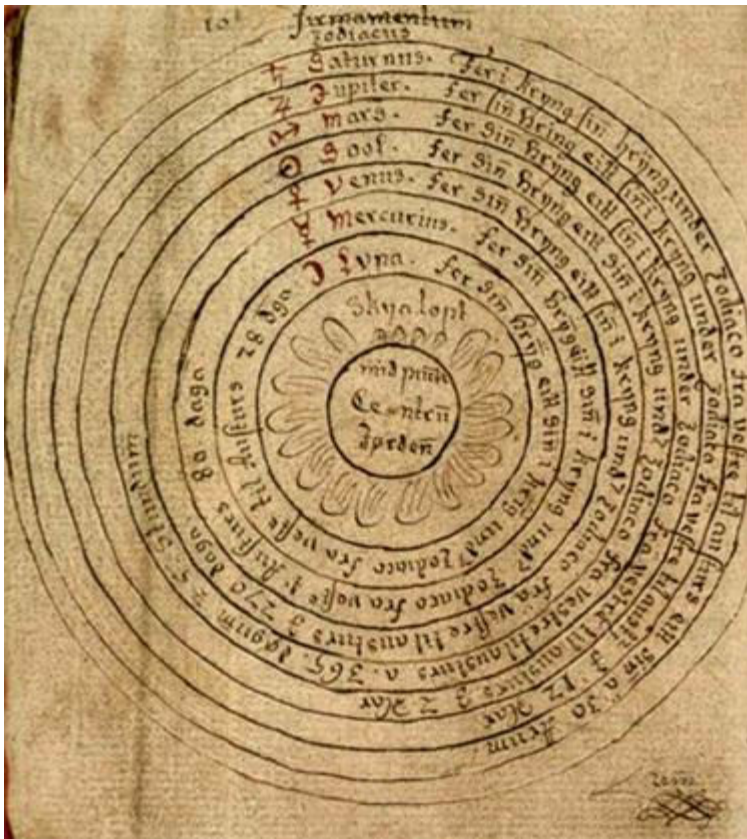
Until the 16th century it was thought that the Earth was the center of the universe. This view is known as the "geo-centric model," from the Greek words **geo** (Earth) and **centron** (center). This belief was questioned by the famous astronomer Nicolaus Copernicus in 1543 in his book **De Revolutionibus Orbium Coelestium** (Of the Revolutions of Heavenly Spheres), in which he suggested that the Earth and the other planets revolve around the Sun. But as a result of observations using a telescope performed by Galileo Galilei in 1610, it was scientifically established that the Earth revolves around the Sun. Since it had hitherto been thought that the Sun revolved around the Earth, most scholars of the time rejected Copernicus' theory. The famous astronomer Johannes Kepler's views setting out the movements of the planets confirmed the helio-centric model in the 16th and 17th centuries. In this model, whose name comes from the words **Helios** (Sun) and **centron** (center), the Sun is the center of the universe, rather than the Earth. Other heavenly bodies also revolve around the Sun. Yet this was all revealed 1400 years ago in the Qur'an.

By saying that the Earth was the center of the universe, the ancient Greek astronomer Ptolemy was responsible for the geo-centric idea of the universe that prevailed for hundreds of years. For that reason, at the time of the revelation of the Qur'an, nobody knew that the Earth-centered model that accounted for the formation of day and night in terms of the movement of the Sun was incorrect. On the contrary, all the stars and planets were regarded as revolving around the Earth. Despite these prevalent errors of the time, the Qur'an contains many expressions that agree with the scientific facts regarding day and night:

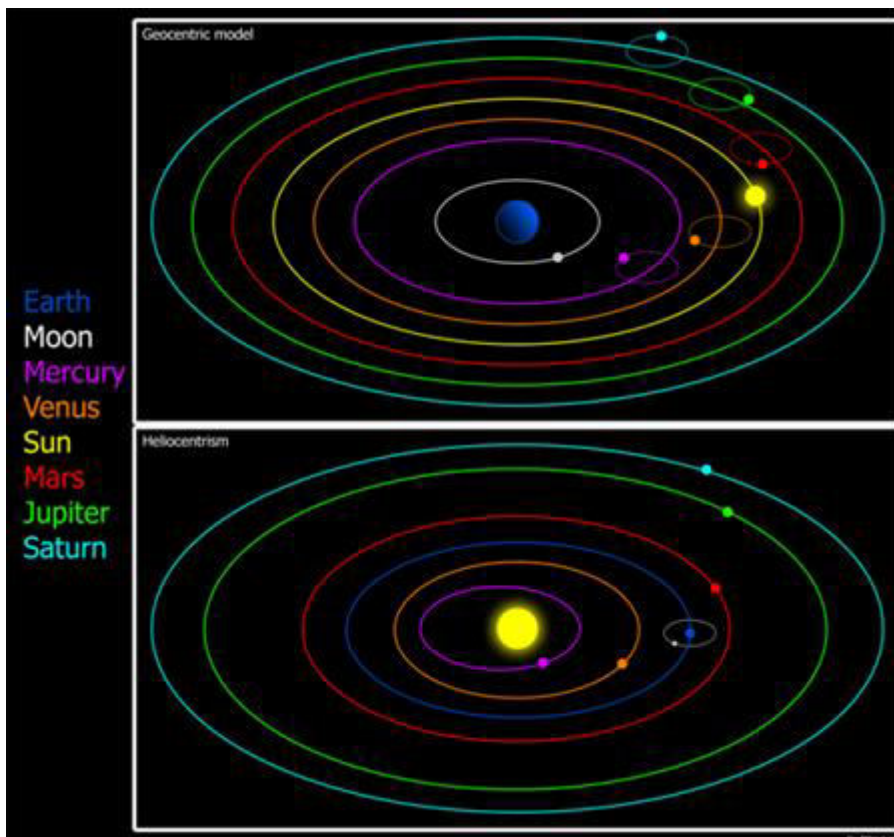
By the Sun and its morning brightness, and the moon when it follows it, and the day when it displays it, and the night when it conceals it (Surat ash-Shams, 1-4)

As set out in the above verse, day, the brightness of the Sun, is the result of the movement of the Earth. It is not the movement of the Sun that is responsible for night and day. In other words, the Sun is immobile in terms of night and day. The information in the Qur'an refutes the thesis that the Earth is fixed while the Sun revolves around it. The Qur'an is clearly descended from the presence of our Lord, He Who is unfettered by space and time. As science and technology advance more and more examples of the compatibility between the Qur'an and science are coming to light. This is set out in another verse from the Qur'an:

There is instruction in their stories for people of intelligence. This is not a narration which has been invented but confirmation of all that came before, a clarification of everything, and a guidance and a mercy for people who believe. (Surah Yusuf, 111)



The above manuscript dating from the 1750s shows the geo-centric (Earth-centered) model of the universe. It took many years for this to be abandoned and replaced by the helio-centric model.



The model above is the helio-centric (solar-centered) one that has been proved today, while the model on top is the geo-centric (Earth-centered) model that was thought to be true for many hundreds of years.

THE OZONE LAYER AT THE POLES AS THE SUN RISES

Until he reached the rising of the sun and found it rising on a people to whom We had not given any shelter from it. (Surat al-Kahf, 90)

The Arabic word "**sitrān**" in verse 90 of Surat al-Kahf means "cover, shelter, curtain or screen." The term "**lā naja lāhun min dooniha sitran**" describes an environment devoid of any shelter or protection against the Sun. In the light of present-day knowledge, this is suggestive of the ozone layer that protects living things against harmful solar rays.

The area where the ozone layer around the Earth is thinnest, where it protects least against solar radiation, is the poles.¹ Scientific research has established a severe thinning of the ozone layer at the North Pole at the moment the Sun rises² and this scientific discovery has been described as Sunrise Ozone Destruction (SOD)³.

As a matter of fact, during their research, American scientists determined a rapid decrease in ozone concentration at the moment of sunrise – when there was no sign of any before.⁴ This phenomenon is particularly encountered in the North Pole (Arctic) region, and there is a serious loss of ozone for a few hours immediately after sunrise.⁵

The Arabic word "**matlia**" in this verse, meaning the "rising place" of the Sun, may well be a reference to this scientific discovery about the ozone layer. (Allah knows the truth.) The fact that this information, obtained with 20th century high technology, also appears in such a compatible form in the Qur'an, is yet more proof that the Qur'an is the revelation of our Lord, the One and Only Owner of science and technology.



Sunrise at the North Pole.



¹ http://en.wikipedia.org/wiki/Ozone_depletion

² L. A. Barrie, J. W. Bottenheim, R. C. Schnell, P. J. Crutzen, R. A. Rasmussen, "Ozone destruction and photochemical reactions at polar sunrise in the lower Arctic atmosphere", ***Nature***, 14 July 1988, Vol. 334, pp 138-141;

<http://www.nature.com/nature/journal/v334/n6178/abs/334138a0.html>

3 I. Nagao, K. Matsumoto, H. Tanaka "Sunrise Ozone Destruction Found in the Sub-Tropical Marine Boundary Layer", **Geophysical Research Letters**, 1999, Vol. 26, no. 22, pp. 3377–3380; <http://www.agu.org/pubs/crossref/1999/1999GL010836.shtml>
4 Jagir S. Randhawa, "A Balloon Measurement of Ozone Near Sunrise"; <http://www.stormingmedia.us/31/3147/0314707.html>
5 I. Nagao, K. Matsumoto, H. Tanaka "Sunrise Ozone Destruction Found in the Sub-Tropical Marine Boundary Layer", **Geophysical Research Letters**, 1999, Vol. 26, No. 22, pp. 3377–3380; <http://www.agu.org/pubs/crossref/1999/1999GL010836.shtml>

HEART MESSAGE

Many miraculous features of the Qur'an prove it is the word of Allah. Facts are revealed in the verses through the scientific facts, the descriptions of the past and the mathematical codes, that could never have been known to anyone at the time. In addition, developments that could never have been learned with the level of knowledge and technology of the time were also indicated in the verses of the Qur'an before the event. The fact that some scientific facts we only attained with 20th and 21st-century technology were revealed in the Qur'an 1400 years ago is clear evidence that the Qur'an cannot be the work of any human being.

One of the verses that may be referring to the future is verse 73 of Surat al-Baqara:

Remember when you killed someone and violently accused each other of it, and Allah brought out what you were hiding. We said, 'Hit him with part of it!' In that way Allah gives life to the dead and He shows you His Signs so that hopefully you will understand. (Surat al-Baqara, 72-73)

Among the meanings of the Arabic term "biba'*dih*a," translated as "with part of it" in the above verse, is "someone or some people." In the context of that meaning, the verse may be a reference to heart massage, striking the chest from above, which makes it possible to restart the heart if it has stopped beating. (Allah knows the truth.)

The person to whom the massage is administered has the characteristics of a dead body; loss of consciousness, and the cessation of respiration and heartbeat. With our present-day knowledge, heart massage can be applied to someone whose heart has stopped, enabling heartbeat and vital functions to resume. Pressure is applied to the rib cage at specific intervals during heart massage, and the rhythmic contraction required for it to continue pumping blood is thus established.

In that context, the striking of a dead body in such a way as to restore it to life, as stated in the verse, may be suggestive of the heart massage technique. The Qur'an is the word of Almighty Allah, He Who creates all things from nothing, Whose knowledge enfolds all things, and Who is unfettered by time and space. Every verse of the Qur'an therefore contains information revealed with the wisdom of our Almighty Lord. In one verse, Allah refers to the Qur'an itself as follows:

... Will they not ponder the Qur'an? If it had been from other than Allah, they would have found many inconsistencies in it. (Surat an-Nisa', 82)

THE CLONING OF LIVING THINGS

[Satan said:] "I will lead them astray and fill them with false hopes. I will command them and they will cut off cattle's ears. I will command them and they will change Allah's creation." Anyone who takes satan as his protector in place of Allah has clearly lost everything." (Surat an-Nisa', 119)

The above verse contains the expression "yubbattikunna," which derives from the verb "battaka" meaning "to cut off or break off." The term "yughayyirunna" in the verse derives from the verb "ghayyara," meaning "to change, alter, impair a thing's original form." At the end of both verbs appears the confirmatory letter "nun." With these expressions, verse 119 of Surat an-Nisa' may, in one aspect, be pointing to the scientific activity of copying or cloning of organisms. (Allah knows the truth.) That is because cloning experiments are generally conducted with cells taken from an animal's ear. To put it another way, a replica living thing is produced with the taking of cells from tissue samples "cut from animals' ears," just as described in the verse.

A report by the German Federal Agricultural Research Center provides the following information:

The tissue collection phase is short and simple. Once an animal has been located and restrained, a tissue sample like an ear clipping can be collected within seconds. Furthermore, somatic cells can be collected from all species. ... For cattle, pigs, sheep, goats, camelids and llamas, a unified and identical procedure can be used by obtaining a tissue sample from the ear using notchers which are also used for setting earmarks... Clearly, for all species lymphocytes could be used, but somatic cells from ear clippings will be much easier to obtain and are therefore preferable. 1

Some reports concerning organisms cloned by taking samples from ear tissue include:

- According to a report by Reuters dated 1 May, 2002, a research veterinarian at the University of Sao Paulo in Brazil, Jose Visintin, produced cloned embryos for the first time in the country by using cells taken from the ear of an adult cow.²
- According to a BBC report, South Korean scientists cloned a dog called Snuppy from cells taken from a 3-year-old Afghan hound. Researchers at the Seoul National University extracted genetic material from the cells taken from the ear and placed it into an empty egg cell. An embryo was then obtained by stimulating the cell to divide.³
- Another BBC report said that a new clone had been produced using ear cells from an adult cow in research carried out by Dr. Jean-Paul Renard et al. at the Institute National de la Recherche Agronomique in France.⁴
- According to information of the official Human Genome Project website, in February 2002, scientists from the Advanced Cell Technologies (ACT) biotechnology company carried out experiments on cloning a cow embryo using the skin cell of the donor cow's ear.⁵
- A report by Associated Press, dated 24 January, 2000, announced that Japanese scientists had cloned the clone of a bull for the first time. In the re-cloning, skin tissue samples from the first generation cloned bull's ear were taken when it was four months old. These cells were then fused with an unfertilized egg from which the nucleus had been removed.⁶

The way that changes in the creation of living things are referred to in the Qur'an and the expression "cutting off cattle's ears," at a time when no branches of science such as genetics or embryology existed, shows that the Qur'an has come down from the Sight of our Lord, Allah, Who is unfettered by time. We are also told at the end of the verse that these people will be disappointed when they alter what Allah has created. The verse may therefore be indicating that cloning will give rise to various problems for human beings. (Allah knows the truth.) Indeed, statements from the Genetic Science Learning Center of the University of Utah provide the following information:

When we hear of cloning successes, we learn about only the few attempts that worked. What we don't see are the many, many cloning experiments that failed! And even in the successful clones, problems tend to arise later, during the animal's development to adulthood.⁷

Information from the Human Genome Project website take this form:

Dolly, the first mammal to be cloned from adult DNA, [died on] Feb. 14, 2003. Prior to her death, Dolly had been suffering from lung cancer and crippling arthritis. ... More than 90% of cloning attempts fail to produce viable offspring. ... In addition to low success rates, cloned animals tend to have more compromised immune function and higher rates of infection, tumor growth, and other disorders. Japanese studies have shown that cloned mice live in poor health and die early. ... Appearing healthy at a young age unfortunately is not a good indicator of long term survival. Clones have been known to die mysteriously. For example, Australia's first cloned sheep appeared healthy and energetic on the day she died, and the results from her autopsy failed to determine a cause of death.⁸

In general terms, the risks arising from cloning experiments are as follows:

1) A high failure rate: The level of success is just 0.1%-3%. That means a failure rate of 970-999 for every 1000 experiments.⁹

2) Problems during development: Cloned animals that do survive generally have abnormally larger

organs compared to the originals. This may lead to respiration and circulation difficulties, unhealthy kidneys and brain, and an impaired immune system.

3) Abnormal gene expression patterns: Although clones have the same DNA sequences as the originals, the cell nucleus in the clone does not have the same program as that in a natural embryo. To put it another way, the DNA cannot express the right set of genes essential for the development of the clone at the right time. For example, cells of all kinds, nerve, bone, blood or skin for example, all have different programs but the genetic programs in the clone embryo do not work as healthily as those in a natural embryo.

4) Telomeric differences: Chromosomes are shortened as cells divide. The reason for this is that DNA sequences at both ends of a chromosome, known as telomeres, are shortened during each DNA replication. As an animal grows older, the telomeres shorten as part of that aging. Therefore, the copied life form has shortened chromosomes from the moment it is born, just as if it were actually older.

Genetic material taken from living cells is used in cloning experiments, but fertilization takes place artificially. The reproduction mechanism created by Allah is thus impaired with these methods, and unidentified diseases, developmental deficiencies and early deaths are encountered. The way that it was reported 1400 years ago that scientists would engage in cloning and that the problems awaiting people therefrom are emphasized, clearly reveals that the Qur'an is a Divine scripture.



In the cloning process, DNA from a cell of the living thing planned to be copied is placed under the microscope and placed into an egg cell from another member of the same species. The DNA of the animal intended to be copied is used for this. An electric shock is then applied, which stimulates the egg cell to start dividing. The embryo continues to divide and is placed into the womb of a member of the species, and is then left to develop and be born.

1 <http://www.fao.org/docrep/008/a0070t/a0070t05.htm>

2 <http://ngin.tripod.com/010502b.htm>

3 <http://news.bbc.co.uk/2/hi/science/nature/4742453.stm>

4 <http://news.bbc.co.uk/1/hi/sci/tech/331793.stm>

5 http://www.ornl.gov/sci/techresources/Human_Genome/elsi/cloning.shtml

6 <http://www.gene.ch/info4action/2000/Jan/msg00061.html>

7 <http://learn.genetics.utah.edu/units/cloning/cloningrisks/>

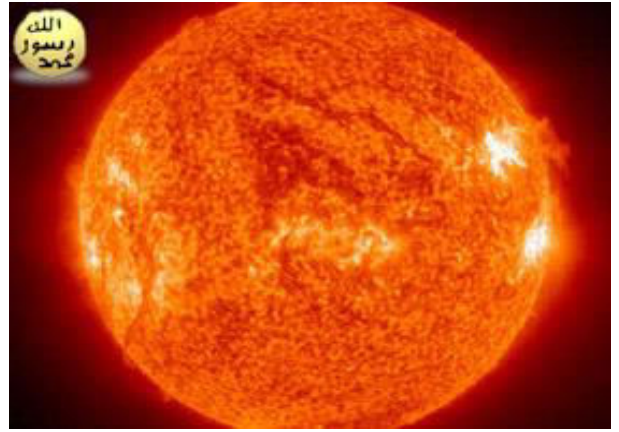
8 http://www.ornl.gov/sci/techresources/Human_Genome/elsi/cloning.shtml

9 <http://learn.genetics.utah.edu/units/cloning/cloningrisks/>

THE SUN WILL EXPIRE AFTER SOME TIME

And the sun runs to a fixed resting place. That is the decree of the Almighty, the All-Knowing. (Surah Ya Sin, 38)

The Sun has been emitting heat for around 5 billion years as a result of the constant chemical reactions taking place on its surface. At a moment determined by Allah in the future, these reactions will eventually come to an end, and the Sun will lose all its energy and finally go out. In that context, the above verse may be a reference to the Sun's energy one day coming to an end. (Allah knows the truth.)



The Arabic word "*mustaqarrin*" in the verse refers to a particular place or time. The word "*tajree*," translated as "**runs**," bears such meanings as "**to move, to act swiftly, to move about, to flow**." It appears from the meanings of the words that the Sun will continue in its course in time and space, but that this motion will continue until a specific, predetermined time. The verse "**When the Sun is compacted in blackness**" (Surat at-Takwir, 1) which appears in descriptions of Doomsday, tells us that such a time will be coming. The specific timing is known only to Allah.

The Arabic word "*taqdeeru*," translated as "**decree**" in the verse, includes such meanings as "**to appoint, to determine the destiny of something, to measure**." By this expression in verse 38 of Surah Ya Sin we are told that the life span of the Sun is limited to a specific period, one ordained by Allah. Other verses of the Qur'an on the subject read:

Allah is He Who raised up the heavens without any support – you can see that – and then established Himself firmly on the Throne. He made the Sun and Moon subservient, each running for a specified term. He directs the whole affair. He makes the Signs clear so that hopefully you will be certain about the meeting with your Lord. (Surat ar- Ra'd, 2)

He makes night merge into day and day merge into night, and He has made the Sun and Moon subservient, each one running until a specified time. That is Allah, your Lord. The Kingdom is His. Those you call on besides Him have no power over even the smallest speck. (Surah Fatir, 13)

He created the heavens and the Earth with truth. He wraps the night around the day and wraps the day around the night, and has made the Sun and Moon subservient, each one running for a specified term. Is He not indeed the Almighty, the Endlessly Forgiving? (Surah az-Zumar, 5)

The use of the word "*musamman*" in the above verses shows that the life span of the Sun will run for a "**specified term**." Scientific analysis regarding the end of the Sun describes it as each second, 4 million tons of matter are converted into energy ¹, and says that the Sun will die when that fuel has all been consumed. ² The heat and light emitted from the Sun is the energy released as matter is consumed as hydrogen nuclei turn into helium in the nuclear fusion process. The Sun's energy, and therefore its life, will thus come to an end **once this fuel has been used up**. (Allah knows the truth.) A report titled "The Death of the Sun" by the **BBC News** Science Department says:

...The Sun will gradually die. As a star's core crashes inwards, it eventually becomes hot enough to ignite another of its constituent atoms, helium. Helium atoms fuse together to form carbon. When the helium supply runs out, the centre collapses again and the atmosphere inflates. The Sun isn't massive enough to fully re-ignite its core for a third time. So it goes on expanding, shedding its atmosphere in a series of bursts... The dying core eventually forms a white dwarf - a spherical diamond the size of the Earth, made of carbon and oxygen. From this point on the Sun will gradually fade away, becoming dimmer and dimmer until its light is finally snuffed out. ³

A documentary, also called "The Death of the Sun," broadcast by **National Geographic TV**, provides the following description:

It generates heat and sustains life on our planet. But like humans, the sun has a limited lifespan. As our star ages, it will become hotter and expand, evaporating all of our oceans and killing all life on planet Earth... The sun will get hotter as it ages and burns fuel faster. Temperatures will increase, eventually wiping out animal life, evaporating our oceans and killing all plant life... the sun will swell and become a red giant star, swallowing up the nearest planets. Its gravitational pull will lessen and perhaps allow Earth to escape. By the end, it will shrink into a white dwarf star, emitting a weak glow... 4

Scientists have only recently unravelled the structure of the Sun and discovered what goes on inside it. Before that, nobody knew how the Sun obtained its energy or how it emitted heat and light. The way that such a giant mass of energy would one day consume all its energy and expire was revealed 1,400 years ago in the Qur'an shows the presence of a sublime knowledge. That knowledge belongs to our Lord, Whose knowledge enfolds all things. Another verse of the Qur'an reveals:

"... My Lord encompasses all things in His knowledge so will you not pay heed?" (Surat Al-An'am, 80)

1 <http://en.wikipedia.org/wiki/Sun>

2 <http://en.wikipedia.org/wiki/Sun>

3 <http://www.bbc.co.uk/science/space/stars/death/index.shtml>

4 "Death of the Sun", National Geographic Channel, 20 March 2006, director: Rabinder Minhas, part no. 25, season 3.

THE PULLING MOTION THAT FACILITATES BIRTH

The pains of labor drove her to the trunk of a date-palm. She said, "Oh if only I had died before this time and was something discarded and forgotten!" A voice called out to her from under her, "Do not grieve! Your Lord has placed a small stream at your feet. Shake the trunk of the palm towards you and fresh, ripe dates will drop down onto you." (Surah Maryam, 23-25)

Modern-day medicine shows that pulling an object facilitates the baby's downward passage through the birth canal. The muscles used during pulling are the same as those that propel the baby outside the womb. Various methods are employed to achieve this, such as pulling on a cord suspended from the ceiling or on arms attached to the two sides of the bed or else holding onto and squeezing someone's hand.¹

A U-shaped bar, known as a "squat bar," mounted onto the bed during labor is used for that end. Pulling on this bar facilitates the baby's leaving the womb, shortens the length of the birth canal, widens the mouth of the womb and reduced the need for many other devices and techniques during labor.²

This bar helps the mother's squatting motions as she pulls herself up and down on it. It also means the mother remains immobile as the baby emerges. ³ In this position, the muscles needed to move the baby down the birth canal expend the minimum amount of energy. In addition, with the expansion of the pelvic bone, 30% more room is made available for the baby to pass through. With the expansion and pulling motion, the body's propulsive force is raised to the highest level and the baby is able to move smoothly during the birth process.⁴

There is great wisdom in the way that, by means of Allah's angels, Hazrat Maryam shook the branches of the date-palm tree toward her. The Arabic word "*Wahuzzee*" means "to shake fast, to move or to rock." In addition to dates facilitating birth and having nutritious properties, pulling the branches toward one to shake them and then letting them pull back in another movement that facilitates birth. This technique, applied in our own day, is one of the proofs that Allah supported Hazrat Maryam with His compassion and that the Qur'an is the word of our Lord, the Omniscient.

1 <http://www.mother-care.ca/rebozo.htm>

2 <http://pregnancy.about.com/cs/laborbasics/a/squatting.htm>

3 http://parenting.ivillage.com/pregnancy/plabor/0,,midwife_8swr,00.html?iv_arrivalSA=1&iv_cobrandRef=0&iv_arrival_freq=1&pba=adid=16657989

4 <http://www.unhinderedliving.com/squatting.html?cfA3F3B2C5=bmVuNjE4Mzpnbn29keWVhcl9lbWVhX2ludGVybmV0Ogcdo6IntkWnwjS4RfAX00c=>

THE EXPANDING EARTH

It is He Who stretched out the earth and placed firmly embedded mountains and rivers in it and made two types of every kind of fruit. He covers over day with night. There are Signs in that for people who reflect. (Surat Ar-Ra'd, 3)

The Arabic term "*madda al-arda*" translated "**as stretched out**" in the above verse, means "to be covered, spread out, stretched, pulled out, expanded or opened." The use of this word in the context of the earth in referring to the formation of mountains and rivers is exceedingly wise. Because looking at the scientific explanation of the formation of the earth, it does appear that mountains and rivers formed through the stretching and expansion of the earth.

Modern science says that the earth had a very different appearance in the very earliest times to that which it has now. In his book *Die Entstehung der Kontinente und Ozeane* (The Origin of the Continents and Oceans) in 1915 the famous German scientist Alfred Lothar Wegener proposed that all the continents had originally been one single land mass. This great land mass later came to be known by the Greek name *Pangaea*, meaning "all continents."¹ According to Alfred Wegener's theory of "continental drift," put forward in 1912, the continents at the two ends of the Atlantic Ocean are still moving away from one another. This theory assumed its latest, present-day state with the development of the field of science known as the tectonic plates: Continents do not move away from one another by sliding over the ocean floor. The ocean floor and the continents drift together over a layer of liquid magma under great heat and pressure and known as the "asthenosphere" or "upper crust." Therefore, both the land continents on earth visible from the outside and also the crust under the sea are both in motion together.²

Because the plates that bear the continents move in a manner described as contraction and expansion, or stretching, the continents are today moving away from one another at a rate of 3 cm a year.³ The most evident expansion taking place on the sea bed is that between Arabia and Africa, where the continents are moving away from one another three or four times faster. When the expansion takes place on the continent, rather than on the sea bed, the result is constantly widening valleys such as the Great Rift Valley in the East Africa-Arabia regions.

The Great Rift Valley is a geographical and geological formation stretching some 6000 km, from Sudan in North Africa to Mozambique in the east. The valley ranges from 30-100 km in width and is several thousand kilometers deep.⁴ This deep valley brought such formations as Mount Kilimanjaro and Mount Kenya into being as Africa and the Arabian Peninsula moved away from one another over a process lasting millions of years. The eastern part of valley consists of the River Jordan, the Dead Sea and the Gulf of Aqaba. It then extends southward along the Red Sea and various lakes in Kenya. Most of these lakes are very deep and below sea-level.⁵

The Book *The Expanding Earth* describes how it is not only mountains, but also certain river beds that formed due to the "expansion" of the earth:

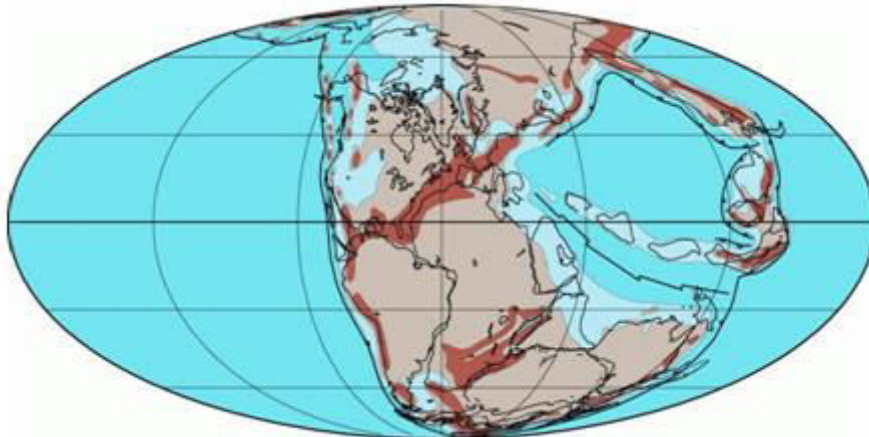
In statements regarding the continent of America, the Utah Geological Research Center says:

The ranges and basins have been forming for the past 10 to 20 million years in response to east-west **stretching** of the earth's crust. Stretching creates tension that is released by slow continuous movement or sudden movement along a fault (a break in the earth's crust), which causes earthquakes. During an earthquake, the mountains rise while the valleys drop along the faults. The stretching continues today.⁶

Facts such as the expansion of the earth can only be established by comprehensive research and common data from various contemporary branches of science. For example, photographs taken by satellite, the product of 20th century technology, have confirmed the view that the continents were once complementary to one another. Highly accurate measurements have revealed that the expansion in the earth's crust is continuing at a slow but specific rate. The presence in the Qur'an of such special information at a time when nobody could determine anything about the continents and, what is more, about formations that took millions of years to develop, once again shows that it is the word of Allah. The way that the Qur'an, revealed 1400 years ago, contains such profound information about the formation of the earth, is one of its scientific miracles.



This photograph taken by NASA from space shows the Gulf of Aqaba and the Suez Canal, to the east of the Sinai Peninsula. The Sinai Peninsula, the Dead Sea and the River Jordan constitute the northern part of the Great Rift Valley.



A reconstruction from the time when there was only one large continent -*Pangaea*- about 300 million years ago.

http://en.wikipedia.org/wiki/Alfred_Lothar_Wegener

<http://www.ucmp.berkeley.edu/history/wegener.html>

http://www.gsfc.nasa.gov/gsfc/service/gallery/fact_sheets/spacesci/lageos.htm

http://en.wikipedia.org/wiki/Great_Rift_Valley

<http://www.answers.com/topic/great-rift-valley>; <http://www.britannica.com/eb/article-9031748/Great-Rift-Valley>

The Expanded Earth, Benchmark Publishing & Design, Canada, 1996; <http://www.wincom.net/earthexp/n/rivers.htm>

Utah Geological Survey, Geologic Stretching; <http://geology.utah.gov/teacher/tc/tc12-96.htm>

QUASARS AND THE GRAVITATIONAL LENS EFFECT

Allah is the light of the heavens and the Earth. The metaphor of His light is that of a niche in which is a lamp, the lamp inside a glass, the glass like a brilliant star, lit from a blessed tree, an olive, neither of the east nor of the west, its oil all but giving off light even if no fire touches it. Light upon light. Allah guides to His light whoever He wills and Allah makes metaphors for mankind and Allah has knowledge of all things. (Surat an-Nur, 35)

Quasar is the name given to extremely dense and bright bodies that look like stars and emit radio waves in space. Quasars are the brightest known bodies in the universe. The brightness of the brightest quasar in the universe is more than 2 trillion times greater than that of the Sun (2×10^{12}); it is approximately 100 times greater than the total light emitted by a galaxy such as the Milky Way.¹



The word "noor" in the verse means "light, brightness, daylight, shining, illumination." The light referred to in the verse is suggestive, in terms of its brightness, of these celestial bodies known as quasars. Because other expressions in the verse describe the visibility of quasar light and the source of that light in the very wisest terms. (Allah knows the truth.)

The word "durriyyun", meaning "bright," in the expression "kaannaha kawkabun durriyyun" in the verse, itself meaning "like a brilliant star," is highly compatible with the scientific description of quasars as "bright, stellar bodies".² In addition, the verse speaks of "giving off light even if no fire touches it." It is probable that this is a reference to the way quasars burn without fire - nuclear fusion. Since oxygen is not naturally present in space, there can be no question of the brightness of quasars having anything to do with fire. The burning taking place here does so as hydrogen atoms are compressed and produce helium. The energy released during this process then illuminates space.

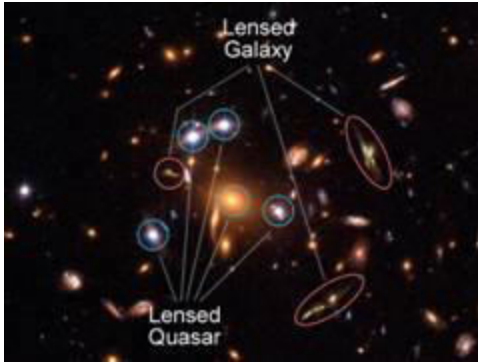
The expression "light upon light" in the verse may well be a reference to the "gravitational lens effect" in astronomy. (Allah knows the truth.) Many astronomers investigating the sources of light in the universe will easily understand this description in the verse. The effect in question refers to the way light from a source behind a body with a very dense mass, such as a black hole, departs under the effect of that dense body and reaches us. It appears that there is therefore more than one source of light of the images we see. Due to this "gravitational lens effect," an object appears to be somewhere different to where it actually is, and in greater numbers.

The term "a niche in which is a lamp" in the verse may be interpreted as the niche being the area of gravitational lens effect of a black hole. (Allah knows the truth.) It is significant that in describing the effect that arises, NASA scientists use the analogy of the effect of a drinking glass:

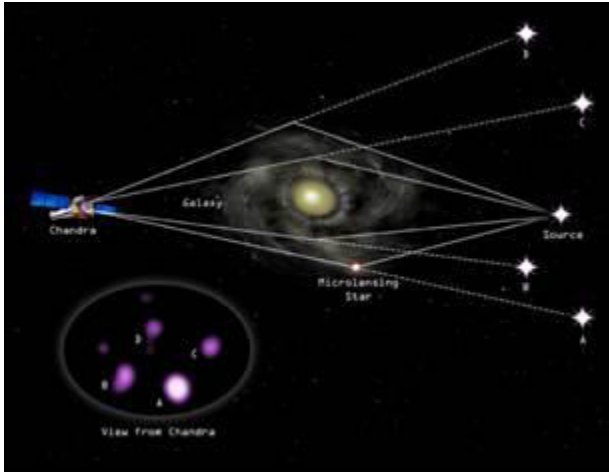
*The gravitational effect of the galaxy on the distant quasar was similar to the lens effect of a drinking glass on a distant street light – it created multiple images lenses here too.*³

In his book *The Whole Shebang*, regarded as one of the leading books of the 20th century by the *New York Times*, the science writer Timothy Ferris clarifies the subject as follows:

*As light from a Quasar travels towards us... it may pass through either side of an intervening cluster of galaxies. The warped space surrounding the cluster can act as a lens, with a result that we see two images of what is (or was) actually one quasar.*⁴



NASA's Hubble Space Telescope caught a single quasar in space producing images of five separate stars for the very first time. Bodies with a high density – a group of galaxies here – produce more than one image by giving rise to the gravitational lens effect, bending the light from objects behind them, in this case quasars.

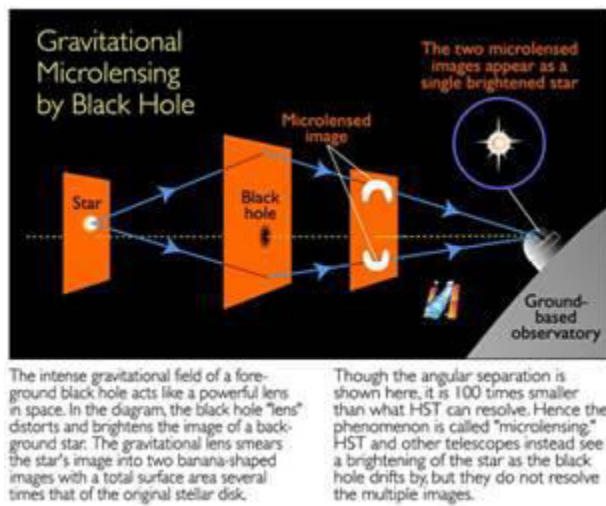


The illustration shows a quasar appearing to be in four separate places due to the gravitational lens effect. The images, obtained by the Hubble Space Telescope (Chandra), represent a distance of 11 billion light years.

The reference in the verse to "light on light" may be a description of reflected light forming more than one image. In addition, the term "neither of the east nor of the west" in the verse is in all likelihood a reference to the uncertainty of the light's source. (Allah knows the truth.)

Quasars are the brightest objects in the universe, and are the nuclei of growing galaxies with the black holes in their center. Black holes, that arise as the result of the contraction of stars and gasses belonging to galaxies, are the source of quasar energy. Quasars' brightness is spread by stars falling into the black holes at the centers of galaxies.⁵ Thinking of the "lamp" in the verse as a quasar, the "niche" may well be a reference to the "black hole" that feeds the quasar. (Allah knows the truth.)

Einstein suggested that due to the effect described as the "gravitational lens," bodies in space could bend light and that it was possible for an observer to see several images from one single source.⁶ However, this effect was only observed for the first time in the quasar known as the "Twin Quasar" in 1979. Quasars were first discovered in 1963, 14 centuries after the revelation of the Qur'an. The status of the heavenly bodies described in verse 35 of Surat an-Nur is in surprising agreement with our current scientific knowledge. This and a great many other scientific miracles are clear proof that the Qur'an is the revelation of our Omniscient Lord, the Creator of all things.



If a star is immediately behind the black hole, as in the illustration, the star will appear to be both to the right and to the left of the black hole.

Gravitational lens effect

1 <http://en.wikipedia.org/wiki/Quasar>

2 <http://www.thefreedictionary.com/quasar>; <http://antwrp.gsfc.nasa.gov/apod/ap951022.html>

3 <http://antwrp.gsfc.nasa.gov/apod/ap950711.html>

4 Timothy Ferris, *The Whole Shebang*, 1997, p. 61.

5 <http://www.tiscali.co.uk/reference/encyclopaedia/hutchinson/m0028790.html>; <http://antwrp.gsfc.nasa.gov/apod/quasars.html>

6 http://en.wikipedia.org/wiki/Gravitational_lensing

SCIENTIFIC FACTS IN THE STORY OF THE FLOOD OF NUH

We sent Nuh to his people and he remained among them for fifty short of a thousand years; yet the Flood engulfed them while they were wrongdoers. (Surat al-`Ankabut, 14)

The Prophet Nuh (as) spent many years advising the people to whom he was sent as a prophet to put an end to ascribing partners to Allah and to abandon their improper behavior. Even though he warned his people about the wrath of Allah several times, they still did not believe the Prophet Nuh (as) and continued in their polytheism. At this, Allah told the Prophet Nuh (as) that He would punish those who denied Him by drowning them, but that believers would be saved. The destruction of the people of Nuh and the salvation of those who believed is described as follows in the Qur'an:

But they denied him so We rescued him and those with him in the Ark. And We drowned the people who denied Our signs. They were a blind people. Surat al-A`raf, 64)

The events that took place when the time for Allah's promised punishment came are described thus:

So when Our command came, and water bubbled up from the earth, We said, "Load into it a pair of every species, and your family – except for those against whom the Word was preordained – and all who believe." But those who believed with him were only few. (Surah Hud, 40)

The beginning of the punishment is described as when "water bubbled up from the earth." The Arabic word translated as "**tannoor**" is "**alttannooru**." This describes a kind of **oven made by digging a hole in the ground**, and therefore refers to the volcanic fire inside a mountain. (Allah knows the truth.) The Arabic word "**wafara**" in the verse means "**burned strongly, produced bubbles, boiled**

up, boiled over, produced a foam." Therefore, the reference in the verse would seem to be to the flowing, molten lava in the mountain.

In another verse, the time for the Prophet Nuh (as) to board the Ark is described as **"when water bubbles up from the earth"** in another verse. This may also be a reference to hot steam or smoke rising from a volcano immediately before an eruption:

We revealed to him: "Build the ship under Our supervision and as We reveal. When Our command comes and water bubbles up from the earth, load into it a pair of every species, and your family – except for those among them against whom the word has already gone ahead. And do not address Me concerning those who do wrong. They shall be drowned. (Surat al-Muminun, 27)

The molten lava flowing in the wake of the eruption may have caused the ice on the mountain to melt; intense steam caused by the combination of heat and cold as the molten lava flowed into the sea may have given rise to intense rains. Flooding was the result of these phenomena, and sources of water on land may also have overflowed as a consequence of the severe rains: (Allah knows the truth.)

So We opened the gates of heaven with torrential water and made the earth burst forth with gushing springs. And the waters met together in a way which was decreed. We bore him on a planked and well-caulked ship, (Surat al-Qamar, 11-13)

Apart from those who boarded the Prophet Nuh's (as) Ark were drowned, including the prophet's son who imagined he could escape by seeking refuge on a mountain nearby:

It sailed with them through mountainous waves, and Nuh called out to his son, who had kept himself apart, "My son! Come on board with us. Do not stay with the unbelievers!" He said, "I will take refuge on a mountain; It will protect me from the flood." He said, "There is no protection from Allah's command today except for those He has mercy on." The waves surged in between them and he was among the drowned. (Surah Hud, 42-43)

When the floodwaters finally receded, the Ark settled on al-Judi as stated in the Qur'an, meaning a very high place:

It was said, "Earth, swallow up your water!" and, "Heaven, hold back your rain!" And the water subsided and the affair was concluded and the Ark came to land on al-Judi. And it was said, "Away with the people of the wrongdoers!" (Surah Hud, 44)

When the mountains shortly after stopped churning forth lava, the waters resumed their former equilibrium as the air cooled down and withdrew back underground; some of it may also have risen into the air as water vapor. The water level returned to normal. Allah's command to the earth to "swallow!" and to the sky to "hold back!" revealed in the Qur'an, summarized this very concisely. The Arabic word **"belea,"** which appears in the verse in the form **"iblaAAee,"** means "swallow up and eliminate, pull back." The reference to the earth swallowing up its water notes the formation of subterranean water sources as the water on the surface retreats underground again. The Arabic verb **"aklaa,"** which takes the form **"aqliAAee"** in the verse, means **"the dispersal of clouds, rain stopping, or abandoning a matter or course of action."** The description is thus in a way, the cooling down of the air as lava stops flowing, the stopping of rain as a result of the water vapor level in the air returning to normal, and the dispersing of the remaining water vapor in the clouds into the air. (Allah knows the truth.)

This chain of events, in complete agreement with the scientific facts, is indicated in the wisest possible terms in the Qur'an. It is just one of the proofs that the Qur'an, which contains such information, comprising many branches of science, such as geography, geology and meteorology, is in complete harmony with science.

THE EARTH'S GRAVITATIONAL FORCE

Did we not make the earth a receptacle? (Surat al-Mursalat, 25)

The Arabic word "**kifatan**," translated as "**receptacle**" in the above verse, means "**living things being gathered together and protected in their dwellings, places where living or inanimate things are gathered together; on which things are piled; place where things are collected.**" "**Kifatan**" comes from root word "**kafata**," which means "**to collect, gather toward one, close embrace.**"

With its gravitational force, the earth pulls the human beings and everything else on it, living or inanimate, toward its center. It is very likely that the use of a verb meaning "to pull toward one" refers to this force of gravity. (Allah knows the truth.)

It is thanks to the force of gravity that pulls the animals, plants, human beings and everything else on earth toward itself, that people are able to walk on the ground, stay where they are without flying off into the air, and orbit the earth without flying off into space, and that the rain is able to fall.

Sir Isaac Newton, regarded as one of the greatest scientists ever, investigated this feature of the earth and made one of the greatest scientific discoveries of all time by speaking of gravity in his book ***Philosophiae Naturalis Principia Mathematica*** (The Mathematical Principles of Natural Philosophy), first published in 1687. The Latin word "*attraere*" Newton used in discussing gravity also means "**to attract, bring together.**" The reference in the Qur'an to one of the earth's four great forces, only described in the 17th century, is just one of the proofs that the Qur'an was sent down from the presence of Allah.

AERODYNAMIC FORCES AND THE FLIGHT PROGRAMMED IN BIRDS

Do they not see the birds suspended in mid-air up in the sky? Nothing holds them there except Allah. There are certainly signs in that for people who believe. (Surat an-Nahl, 79)

Due to the force of gravity, all bodies left in the air will eventually fall to earth, either fast or slowly. Everything, living or otherwise, is subject to gravity. But as a miracle of Allah (God) birds are able to resist this force and fly upward and downward in the air. They maneuver in the air, and sometimes even fold their wings and glide through it. All details in birds, from their feathers to their lungs, from the arrangement of their feathers to the shape of their wings, are equipped with a special feature and order intended to enable them to fly. A chick totally unaware of the act of flight and the laws of aerodynamics is born with the ability to fly. The chick launches itself downwards and begins to fly, just as if it knew its body was created for flight. This is not information that is taught subsequently or that a bird learns by trial and error. The way a bird knows it has the body structure needed to fly, finds the courage to launch itself into the air and then flies without hitting the ground all happens through Allah's inspiration.

The Arabic word "yumsikuhunna" translated as "holds" in verse 79 of Surat an-Nahl means "not letting them go, taking them, catching them, or holding them." The word is the present tense of the verb "amsaka," meaning "to catch with the hand, hold and pull back." With this word, our Almighty Lord reveals that He holds the bird in the air and that it flies by His command. Bird flight is still the subject of wide-ranging research by scientists. Having observed the perfection in bird flight, scientists use the avian body and avian flight as direct models in producing such vehicle as airplanes and jets.

Verse 79 of Surat an-Nahl may in one way be indicating the way that birds comply with the aerodynamic laws created by Allah as they fly. (Allah knows the truth.) The science of aerodynamics studies the behavior of solid bodies in a fluid environment such as air. For example, as a plane moves through the air, various forces emerge that affect that movement. In order for the plane to move as planned and not to run into any unexpected forces or resistance, the plane is tested beforehand against the resistance exhibited by the air. Its movement is planned as a result of lengthy calculations, measurements and experiments.

The way that birds comply with the principles of aerodynamics continues to astonish scientists. Using

no form of trial and error, they cope with the laws of aerodynamics in the most perfect manner. The use of the word "musakhkharatin" (suspended) in the verse to describe bird flight is exceedingly wise. Because it suggests that they have been "encouraged to a specific end, have had to do something, have submitted or bowed their heads, have bound themselves to Allah or have submitted to His laws". In that way, the verse may be indicating the way that aerodynamic laws have a determining influence on bird flight. (Allah knows the truth.)

At first sight there would appear to be nothing to make it difficult for birds to fly. But according to aerodynamics, any object flying in the air is subject to various different forces. The best-known of these are gravity, propulsion, drag and lift. In order for meaningful flight to take place, these forces have to be balanced. For example, if gravity is stronger than the other forces, the bird will fall to earth. That is why the word in the verse is the best possible expression of birds' condition as they are subjected to these forces. The presence in the Qur'an of expressions containing such information at a time when no science of aerodynamics or mechanics existed, once again reveals that the Qur'an is a divine text.



1

The illustration shows the main forces acting on a bird during flight.

Lift

Drag

Weight

Propulsion

The tops of birds' wings are curved, the bottoms flat. This shape produces lower pressure on the top compared to the bottom. This difference in air pressure produces a lift force that enables the bird to rise in the air by beating its wings upward. (right)

(1) The air moving rapidly around the bird's wings produces the lift force. (2) The bird bends its wings in order to obtain greater lift force. The air flowing over the wings is thus accelerated. (3) If it inclines its wings upward at a very steep angle, air cannot easily flow to the upper parts of the wings and the bird loses speed and stalls. Through Allah's inspiration, birds make use of the principles of aerodynamics as they fly. 2



In addition to the aerodynamic perfection in bird flight, scientists are also researching the migrations of thousands of kilometers that they make. Ornithologists have today concluded that these are literally programmed in them. The way that young birds are able to undertake long and arduous journeys with no guide or previous experience is the most obvious example of this. The Arabic word "musakhkharatin" in the verse quoted above implies "being encouraged toward a specific target, being taken under command, being taken under submission," clearly revealing that birds obey the instructions they are given when following the directions set out for them. There is no possibility of birds, which are devoid of intellect and consciousness, managing to make their own calculations as they fly along. Scientists today are agreed that these extraordinary abilities in birds are "pre-programmed" in them. This is set out in an article in the journal *Science*:

There is good evidence that young birds are equipped with endogenous migratory programs, which tell them roughly how many days and/or nights that they must fly, and in what direction.³

In his book *La Puissance et la Fragilité*, Prof. Pierre Jean Hamburger from René Descartes University describes the extraordinary 24,000-kilometer journey made by the shearwater that lives in the Pacific Ocean:

It sets out from the coast of Australia. From there it flies straight southward to the Pacific. Then it turns north and flies along the coast of Japan until reaching the Bering Sea where it can rest for a while. Following that break it sets off again, and this time heads south. Crossing the western coast of America, it arrives in California. It then crosses the Pacific to return to its starting point. The route and timing of this 15,000-mile (24,000-kilometer) figure '8' journey it makes every year never change. The journey in question lasts a whole six months, always coming to an end in the third week of September on the island it left six months before, at the nest it left six months before. What comes next is even more astonishing; after their return, the birds clean their nests, mate, and lay a single egg over the last 10 days of October. The chicks hatch out two months later, grow very fast and are cared for over three months until their parents set out on that stupendous journey. Two weeks later; around the middle of April, it is time for the young birds to take wing on their own journey. They follow exactly the same route as that described above, with no guide. The explanation is so obvious: These birds must have all the directions for such a journey within the inherited characteristics passed on within the egg. Some people may claim that birds navigate by the Sun and stars or follow the winds prevailing along their route on this journey out and back. But it is clear that these factors cannot determine the journey's geographical and chronological accuracy.⁴

Prof. Peter Berthold is a famous ornithologist who has investigated bird migration for 20 years and president of the Max Planck Institute Ornithological Research Center in Germany. He says the following about bird migration:

Every year an estimated 50 billion birds make migratory journeys, along a network of routes that encompasses the whole world. Sometimes travelling tens of thousands of kilometers, crossing continents and oceans, migratory birds have become so well adapted to this task that they can traverse the largest deserts and seas, the highest mountains and expanses of ice... **migratory birds have comprehensive, detailed, innate spatio-temporal programs for successful migration. Such programs evidently enable even young, inexperienced birds to migrate alone, with no adult guide, to the species- or population-specific winter quarters that they have never seen before. As will be explained further below, they do this by "vector" navigation: referring to a vector composed of a genetically predetermined migratory direction and to a time-plan, also genetically predetermined, for the course of migration... It follows that the departure time is programmed by genetic factors...** But how do birds "know" the direction in which to migrate, so that they will reach their specific winter quarters? **Here, again data have been obtained that point to direct genetic control mechanisms. It has long been suspected that migration directions are innate...** when displaced from the normal starting point, and still more crucially, when tested in orientation cages, migratory birds showed directional preferences practically identical to the normal ones, even if they had never migrated before. **Now a number of experiments have provided evidence of the genetic determination of migration direction... Even these directional changes are evidently programmed endogenously to a great extent... With an innate pattern of migratory activity, the birds possess a genetically determined migration schedule. In combination with genetically determined migratory directions, as mentioned above, it guides even inexperienced individuals, migrating for the first time, "automatically" to their previously unknown winter quarters (vector navigation, using a vector composed of a time- and a direction-plan).**⁵

In conclusion, although scientists are unable to fully account for it, scientists still agree that migration is pre-programmed behavior that birds possess from birth. Journeys lasting thousands of kilometers, the preparations made for these flights and bird's ability to find their way and navigate during flight all take place by our Lord's choosing, as expressed in the above verse. The accuracy of all the information provided in the Qur'an is important evidence that this information has all been revealed by Allah.

¹ <http://www.drbonesshow.com/page6.html>

² From the book *Birds and the Origin of Flight*.

3 Rudiger Wehner, "Bird Navigation—Computing Orthodromes", *Science*, 12 January 2001, vol. 291, no. 5502, pp. 264–265.

4 Pierre Jean Hamburger, *La Puissance et la Fragilité*, Flammarion Pub., Paris, 1972.

5 Peter Berthold, "Bird Migration: Introductory Remarks and Overall Perspective", *Torgos*, 1998, Vol. 28, pp. 25-30; http://www.birds.org.il/show_item.asp?itemId=1211&levelId=811&template=209

THE MIRACLE OF FIRE AND WOOD, THAT CANNOT BE OBTAINED ARTIFICIALLY

Have you thought about the fire that you light? Is it you who make the trees that fuel it grow or are We the Grower? We have made it to be a reminder and a comfort for travellers in the wild. So glorify the name of your Lord, the Magnificent! (Surat al-Waqi 'a, 71-74)

One of the chemical substances mainly responsible for the structure of wood is "lignocellulose." This substance is a compound of the materials known as "lignin" and "cellulose" that give wood its hardness. In terms of chemical structure, wood is made up of 50% cellulose, 25% hemicelluloses and 25% lignin.¹ An analysis of these substances' chemical formulae reveals three vital elements: hydrogen, oxygen and carbon.

Hydrogen, oxygen and carbon are the building blocks of millions of substances in nature. But as a miracle from Allah, these three also combine to give rise to the substance "lignocellulose" found in plants. Although scientists know that they contain these substances they are unable to reproduce this special material in plants. Although these elements found in large amounts in nature can easily be obtained, scientists have been unable to obtain a single piece of wood by artificial means, despite having countless examples before them. Yet all the trees we see around us have been ceaselessly producing this compound for millions of years by combining oxygen, carbon, water and sunlight.

One of the compounds in lignocellulose is water, expressed by the formula H₂O. The fact that wood is one of the most flammable materials despite containing a large amount of water is a most special state of affairs. The above verse is very wise in noting that wood cannot be made by human beings, by fire. Thanks to these compounds and the water it contains, wood is one of the most important fuels of fire.

Trees are an important sphere of scientific research, and inspire scientists, who are still struggling to grasp all the details in their creation, in a number of areas. The complex structures of the cells that constitute trees have still not been fully unraveled, despite advances in technology and intensive research. The Forestry Commission of Great Britain, one of the world's leading forestry research institutions, says the following under the heading "Lack of Information on the Chemistry and Structure of Wood Fibres":

Despite the knowledge resulting from earlier and ongoing research, there still exists a lack of information on the chemistry and structure of wood fibres. Large variations can be found within a single tree, from the pith to the bark and from the base to the top of a tree. Often the chemistry and structure of a wood cell are extremely heterogeneous and difficult to investigate with conventional techniques.²

A paper in the scientific journal *Plant Physiology* titled "Our Understanding of How Wood Develops is not Complete" describes the limited knowledge of the subject that scientists possess:

Considering the important role that wood is foreseen to play in the near future, it is surprising to see that our understanding of how wood develops is far from complete. With a few exceptions, very little is known about the cellular, molecular, and developmental processes that underlie wood formation. Xylogenesis represents an example of cell differentiation in an exceptionally complex form. This process is controlled by a wide variety of factors both exogenous (photoperiod and temperature) and endogenous (phytohormones) and by interaction between them. It is driven by the coordinated expression of numerous structural genes (some of known function) involved in cell origination, differentiation, programmed cell death, and heartwood (HW) formation and by virtually unknown regulatory genes orchestrating this ordered developmental sequence. The presence of gene families and the extreme plasticity of the metabolism involved (as exemplified by the unusual behavior of

plants with transformed cell walls; for review, see Fagard et al., 2000) add a further complexity to our understanding of the process of wood formation.³

The extraordinary creation in wood is emphasized thus in another scientific journal, *Annals of Botany*:

Wood formation is a highly complicated process involving an unbelievable variety of metabolic steps in the roots, stem and crown of shrubs and trees. At the centre of these processes is cambial activity which results in the release of young woody cells that undergo maturation until autolysis of the protoplast, indicating the final developmental stage. Later on, in various tree species, woody cells become further modified by an additional process called heartwood formation. The properties of wood that make it an appropriate raw material for many purposes are largely determined by the specific architecture of the cell walls. Difficulties in investigating these many developmental stages appear when routine techniques, which work well for soft plant tissues, are applied. Therefore, in most cases, these techniques need modification or the use of completely revised protocols to yield good results for woody tissues.⁴

These details in the creation of wood remind us, as set out in Surat al-Waqi 'a, that wood cannot be made by human beings. Just a few of the inimitable features of wood, which cannot be produced artificially, are as follows:

Wood, a Resistant Material

The hard and resistant nature of wood is the result of the cellulose fibers it contains. Because cellulose is hard and insoluble in water. It is this property of cellulose that makes the use of wood in construction so advantageous. Cellulose, described as a "contractible and incomparable substance," has for centuries been used a great deal more than other materials in keeping wooden buildings standing, other buildings, bridges and many other structures.

Wood consists of parallel columns made up of convex cells laid end to end. These are surrounded by cellulose fibers in spiral form. In addition, these cells are contained in "lignin," a substance made from a complex, polymer structure resin. These spirally enclosed layers make up 80% of the thickness of the cell wall and are the part bearing the main load. When a wood cell collapses internally it absorbs the shock of a blow by detaching itself from the surrounding cells. Even when such collapses causes a crack along the length of the fiber, the wood remains unharmed. That is why wood is strong enough to bear specific loads even if it is broken.

In terms of absorbing the energy of low-speed blows and reducing the damage therefrom, wood is a most important material. The Second World War plane known as the "Mosquito" was made by compressing wood between strips of fiber board, making it the most damage-resistant plane of its time. The hardness and resistant nature of wood make it a very reliable material. Because wood breaks or cracks slowly enough to be visible from the outside, and that gives people enough time to take the necessary precautions .⁵

A material based on the structure of wood can be up to 50 times more resistant than other synthetic materials in use today.⁶ This unique structure of wood is today used in materials developed to protect against the impact of high speed and destructive fragments such as bombs and bullets. But scientists have never been able to replicate a piece of wood with all its many attributes. Every detail in the creation of wood, - the thickness of the internal layers, their level of compression, the number of vessels, their layout and the materials inside it, have been specially created to result in that resistance.

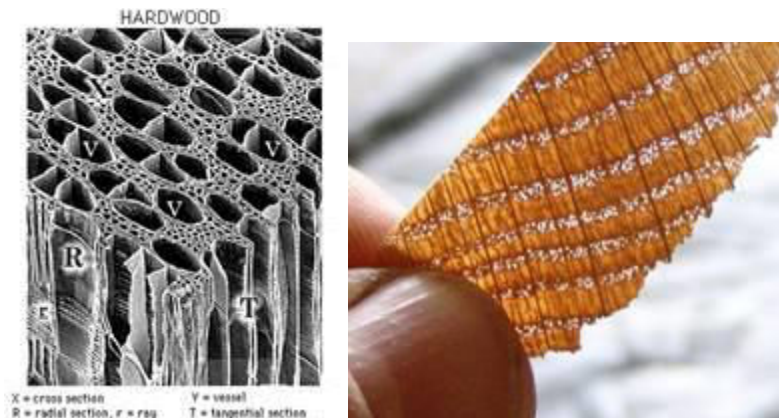
The Hydraulic System That Raises Water Many Meters against the Force of Gravity

The dead part of wood, the "xylem," contains hollow channels. These, also known as "wood vessels," consist of inanimate cells that gradually lose their nuclei and cytoplasm piled one on top of the other. Long, thin wood vessels form when the membranes between the cells dissolve and disappear.

Roots spreading out beneath the soil carry the water and minerals the plant needs upward through these tissues and transmit them as far as the leaves. The way the roots absorb the water in the ground is literally reminiscent of the test bore technique. The roots have no engines to initiate the water absorption process. Neither do they have any technical equipment with which to pump water and

minerals for distances of up to several meters. But the roots absorb the water in the depths of the soil by spreading over a very wide area.

This lifting process that the plant performs so flawlessly is in fact an exceedingly complex one. Yet this system has still not yet been fully understood, even in these days of high technology and space travel. The present of a "hydraulic system: in plants was determined some two centuries ago. But we still do not know how this action in defiance of the force of gravity takes place. The superior technology squeezed into such a confined space is just one of the examples demonstrating the incomparable knowledge of our Lord the creator of the system. Like everything in the universe, Almighty Allah created the transportation system in trees.



7

As seen in the picture to the left, wood consists of tube or straw-shaped cells. By combining one on top of the other, these cells, which make up the roots and trunks of plants, serve as channels that carry water and minerals right through the plant. This tissue, known as "xylem," also constitutes a powerful structure that enables the plant to remain upright. To the right can be seen a slice of dry wood in cross-section. When dried out, the tube-like channels become hollow, as shown in the illustration.

Roots Capable of Selecting Minerals from the Soil:

Plants draw all the mineral nutrients they need, such as potassium, phosphorus, calcium, magnesium and sulfur, from the soil. Since the substances are not found separately in the soil, they absorb them as ions (positive/negatively charged atoms). Of all the many inorganic ions in dissolved state in the soil, plants absorb only the 14 they need.

The iron concentration inside plant cells is 1,000 times greater than that in the soil outside.⁸ Under normal condition, an exchange of matter from a high density region to a lower density one will take place. But exactly the opposite happens in plant roots, and the ions in the soil are easily able to pass into the root cells.⁹

Because of this state of affairs that operates contrary to the pressure system, the plant uses a high level of energy in the pumping process. In addition, in the plant roots' taking up ions from the soil, there needs to be an identification system that attracts only the wanted ions and repels the unwanted ones. This shows that the ion pumps in the root cells are no ordinary pumps, but possess the ability to select between ions. Bearing in mind that the cell in the plant roots are made up of atoms devoid of any intelligence or consciousness, one can better see what an extraordinary process ion selection truly is.

Photosynthesis: The Superior Technology in a Miniature Factory

It is not only the wood and root parts of trees that cannot be obtained by artificial means, but also the leaves. Most important of the features that make leaves inimitable is their ability to make photosynthesis. Photosynthesis, one of the systems that scientists still do not fully understand, may be summarized as plants manufacturing their own nutrients. Thanks to the structure in plant cells that makes them able to make direct use of solar energy, they store solar energy, at the end of various complex processes, in the form of energy that can be used by human beings and animals. In addition, the photosynthetic energy stored in trees is also given off during burning. For example, the energy emitted by wood burned to heat a house is actually energy from the Sun stored during the formation of wood.¹⁰

The photosynthesis system, which operates like a miniature factory, takes place in an organelle known as the "chloroplast" inside the plant cell that gives the plant its green color. Chloroplasts are just one-thousandth of a millimeter in size, for which reason they can only be seen under the microscope. When solar energy falls on the leaf they transmit it to the layers inside it. Chlorophylls inside the chloroplasts in the leaf cells convert this light energy into chemical energy. The plant obtaining this chemical energy immediately uses it in obtaining nutrients. It took scientists until the mid-20th century to obtain this information summarized in just a few lines here. Pages of chain reactions are written to describe the whole process of photosynthesis. But some links in the chain are still unknown. Yet plants have been performing these processes uninterruptedly for hundreds of millions of years, thus providing the Earth with food and oxygen.

The fact that not a single cell constituting wood can be made by artificial means, and human beings' helplessness in the face of dead wood cells, shows the presence of a sublime Creator. The properties of wood, about which many volumes could be written, their countless aspects that so inspire scientists, all reveal the sublime knowledge and intellect behind the creation of wood. This intelligence and knowledge manifested in wood belongs to Almighty Allah, the Creator and sole Lord of all things.

1 <http://www.forestpathology.org/wood.html>; Wood Chemistry and Anatomy, 2005.

2 <http://www.forestresearch.gov.uk/fr/INFD-6FMCUS>; The Research Agency of the Forestry Commission, 2007.

3 Christophe Plomion, Gregoire Leprovost, Alexia Stokes, "Wood Formation in Trees", *Plant Physiology*, December 2001, Vol. 127, pp. 1513–1523.

4 Uwe Schmitt, "Chaffey, N.J. ed. Wood formation in trees—cell and molecular biology techniques", *Annals of Botany*, 2002, Vol. 90, no. 4, pp. 545–546.

5 Julian Vincent, "Tricks of Nature", *New Scientist*, 17 August 1996, Vol. 151, no. 2043, p. 39.

6 Julian Vincent, "Tricks of Nature", *New Scientist*, 17 August 1996, Vol. 151, no. 2043, p. 40.

7 <http://www.smddrums.com/woodcell.htm>

8 Malcolm Wilkins, *Plantwatching*, Facts on File Publications, New York, 1988, p. 119.

9 William K. Purves, Gordon H. Orions, H. Craig Heller, Life, *The Science of Biology*, 4th edition, W.H. Freeman and Company, p. 724.

10 <http://www.montana.edu/wwwpb/pubs/mt8405.html>; Michael Vogel, "Heating with Wood: Principles of Combustion", 2003.

RADIO RECEIVERS ON MOUNTAINS

We gave Dawud great favor from Us: "O mountains and birds! Echo with him in his praise!" And We made iron malleable for him: (Surah Saba', 10)

The description of mountains "echoing" in the above verse may be a reference to the way that radios work. (Allah knows the truth.) The basic principles on which radios operate may be summarized as follows:

The radio system consists of a transmitter and a receiver. The transmitter takes the message to be sent, encodes it in what is known as a "sinus wave" and transmits it in the form of waves. The receiver takes in the radio waves and deciphers the message sent on the sinus wave. In this way, the message is received in exactly the same form as it was sent. The word "awwibi," translated as "echo" in the above verse and meaning "sound being repeated or returned", may very well be a reference to the transmission of these radio waves. (Allah knows the truth.)

Sounds emitted in the form of sound waves by way of an antenna in order that the receiver can take in the data sent are also met by an antenna linked to the receiver. The purpose behind using antennae is the transmission into space of the waves emitted by the radio transmitter. The receiving antenna is intended to collect as many radio waves and messages as possible. That is why NASA uses giant antennae bowls 70 meters across for its satellites millions of kilometers away in space.

There are also radio telescopes which use radio waves to form images. Since radio waves are very long, a radio telescope has to be much larger in order to collect them as images sufficiently clear to be compared. In order to obtain sharper and better images, astronomers use a connected series of smaller telescopes or receptors. These telescopes act collectively as one very large one. And in physical appearance, these series resemble mountain systems.

In addition, "repeaters" are employed to permit radio communications over every great distances. These devices repeat and strengthen weak signals and enable them to be transmitted over considerable distances. Such devices are generally sited on tall buildings or on the tops of mountains for preference, in order to have the greatest effect. The use of the word "awwibi," translated as "echo" in the above verse, is exceedingly wise. The statement of, "O mountains and birds! Echo with him in his praise!" in verse 10 of Surah Saba' may thus be a description of that technology. Allah knows the truth.



A radio telescope on Peach Mountain, in Dexter, Michigan



Each of the antennae in the picture weighs 212 tons, is as high as a 10-storey building and measures 25 meters across.¹

¹ <http://www.val-tech.com/nelsone/vla.html>

THE WISDOM BEHIND THE PROHIBITION OF BLOOD IN THE QUR'AN

He has only forbidden you carrion, blood and pork and what has been consecrated to other than Allah. But anyone who is forced to eat it – without desiring it or going to excess in it – commits no crime. Allah is Ever-Forgiving, Most Merciful. (Surat al-Baqara, 173)

The wisdom behind Allah's prohibition of blood emerged during the 20th century. By carrying vitamins, hormones, oxygen and substances such as protein, sugar and fat absorbed during digestion to the cells, blood makes it possible for life to survive. On the other hand, it also carries various toxins and waste products that need to be expelled from the body. One of the most important tasks performed by blood is to transport substances such as urea, uric acid, keratin and carbon dioxide that need to be removed from the body.

Therefore, in the event that significant quantities of blood are consumed, the level of products in the body that should be expelled will rise considerably. That will increase the levels of urea, harmful substances transported to the kidneys for expulsion from the body. This can impair brain functions and even result in coma. That is why, because of its very nature, there will always be harmful compounds in blood, even if taken from healthy animals. If it is taken from a sick animal, various parasites and germs will also be transmitted in it. In that event, the germs may multiply and spread throughout the body. And that is the real danger. If someone consumes blood, all the germs and waste products in it may spread through the body and lead to such diseases as kidney insufficiency or liver coma. In addition, most of the microbes carried in the blood may cause other diseases by damaging the lining of the stomach and the intestines.

What is more, blood is not a sterile environment; to put it another way, it is ideal for germs to grow in.¹ Since microbes have excellent opportunities to feed in blood, it represents an ideal environment for them. When in equilibrium with the functions of the other fluids in the body and the immune system, blood does not support micro-organisms, and therefore disease. In a healthy individual, these micro-organisms live by making use of one another inside the body. When that environment is

seriously impaired, when the internal equilibrium is damaged, in other words, they may turn into micro-organisms that cause disease when they find the appropriate surroundings.

For example, when the blood pH level (acid and alkali balance) is imbalanced because of poor nutrition or harmful chemicals, harmless microbes can change into ones that cause disease. If the body is to be healthy, the pH level of the blood should be around 7.3. Even small variations in that level may cause that balance to be impaired and cause micro-organisms to become more harmful in order to adapt to their surroundings. Blood being sterile may be compared to milk going off when left outside. Microbes already present in the blood exhibit harmful effects by adapting to their new environment.²

In addition to all this, blood is not suitable for use as a food product. The level of digestible proteins such as albumin, globulin and fibrinogen is low; just 8 grams in 100 ml. of blood. The same applies to fats. In addition, blood contains a high level of hemoglobin, a complex protein that is very difficult to digest and is unacceptable to the stomach. When blood clots, the protein fibrinogen gives rise to a plate containing erythrocytes (red blood corpuscles) by turning into fibrin. Fibrin is one of the hardest proteins to digest, thus making blood even more difficult to digest. In conclusion, health experts agree that blood is unfit for human consumption in any form.

After saying: **“Unlawful for you are carrion, blood and pork, and what has been consecrated to other than Allah, and animals which have been strangled, and animals which have been killed by a blow, and animals which have fallen to their death, and animals which have been gored, and animals which wild beasts have eaten – except those you are able to slaughter properly – and animals which have been sacrificed on altars, and deciding things by means of divining arrows – that is deviance....”** Almighty Allah goes on to say... **“But if anyone is forced by hunger, not intending any wrongdoing, Allah is Ever-Forgiving, Most Merciful”** (meaning that an exception can be made.) (Surat al-Ma’ida, 3) People of the time were unaware of the wisdom behind it, but were protected by abiding by Allah’s prohibition. Those who believe and trust in Allah and comply with His commandments and prohibitions will enjoy auspicious lives in terms of the Hereafter and also live under Allah’s protection and infinite mercy.

1 <http://www.explorepub.com/articles/enderlein1.html>; Karl Windstosser, Polymorphic Symbionts as Potential Cofactors in Cancer Processes", Explore, Vol. 7, no. 6, 1997.

2 <http://biomedx.com/microscopes/rrintro/rr2.html>

FOSSILIZATION AND IRON CONTENT

“They say, ‘What! When we are bones and crumbled dust, will we then be raised up as a new creation!’ Say: ‘It would not matter if you were rock or iron or indeed any created thing that you think is harder still!’ They will say, ‘Who will bring us back again?’ Say: ‘He Who brought you into being in the first place’...” (Surat al-Isra’, 49-51)

The above verses are a reference to people’s dead bodies petrifying and turning into iron. Living tissue is not preserved over millions of years. That is why it is only possible to see things that lived a long time in the past once they have been fossilized. After they die, living things can be preserved for years by fossilization, by their bodies turning into stone under the ground. The word “fossil” refers to “the preservation of a living thing by petrification,” by its turning into stone.

Iron is preserved undamaged in the body as it fossilized. Human beings need to consume an average of 10-15 milligrams a day in order to be healthy. Any excess iron consumed is stored in the liver. In addition, the protein transferrin in blood plasma also carries a certain amount of iron.¹ The reference in the above verse to the presence of iron in the remains of the human body is exceedingly wise from that point of view.

Research has also shown the presence of “pyrite,” (FeS₂) a compound of iron and sulfur, in fossils.² The iron mineral pyrite forms very easily during the degradation of organic substances. It is therefore generally found in fossil shells and is capable of damaging the fossils since it can react with oxygen and water. The words “crumbled dust” in the verse may be a reference to “pyrite degradation,” which leads to the fragmentation and collapse of a fossil as pyrite reacts with water and oxygen.³ Allah knows the truth.

Another fact confirmed by recent findings is that matter constantly seeks the most stable state. Therefore, given sufficient time, all matter will eventually turn into iron. Iron is the most stable state of nuclear matter, and cosmological models predict a stage in which everything will turn into iron as a result of nuclear fusion and nuclear fission reactions.⁴ In his book ***In Search of Schrodinger's Cat: Quantum Physics And Reality***, the astrophysicist John Gribbon describes how iron is the most desirable state of matter and how all matter in the universe wants to turn into iron.⁵

The revelation in the Qur'an that human beings petrify and fossilize and turn into iron is a fact that has now been scientifically confirmed. In the same way that no archaeological, paleontological, geological or astronomical research was possible at the time the Qur'an was revealed, neither was it possible to identify the elements using an electron microscope. For that point of view, the facts revealed in the above verse once more confirm that the Qur'an is a divine text.

¹ http://www.healthatoz.com/healthatoz/Atoz/ency/iron_tests.jsp

² <http://www.tmm.utexas.edu/npl/glossary.htm>

³ <http://www.cr.nps.gov/museum/publications/conserveogram/11-02.pdf>

⁴ <http://www.free-definition.com/Iron.html>; <http://en.wikipedia.org/wiki/Iron>

⁵ <http://www.physicsforums.com/archive/index.php/t-34407.html>

THE MOTHER'S WOMB WITH ITS SECURE PROTECTION

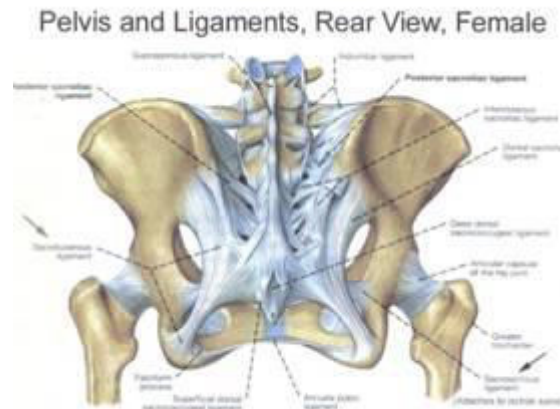
Did We not create you from a base fluid, then place it in a secure repository for a recognised term? It is We Who determine. What an excellent Determiner! (Surat al-Mursalat, 20-23)

We created man from the purest kind of clay; then made him a drop in a secure receptacle; then formed the drop into a clot and formed the clot into a lump and formed the lump into bones and clothed the bones in flesh; and then brought him into being as another creature. Blessed be Allah, the Best of Creators! (Surat al-Muminun, 12-14)

The above verses about the creation of human beings contain fundamental information from the field of embryology. The description of the womb as 'a secure receptacle' indicates an important feature that has been better understood through modern science. (Allah knows the truth.) The process that begins with the zygote, produced by the sperm and egg cells coming together and continues until the emergence of a complete human being, made up of trillions of cells all working in harmony, takes place in the mother's womb. This place, where the embryo completes its 9 months of development is, as the verse tells us, 'a secure receptacle.'

The word "mekiynin," translated as 'secure' above, also suggests such meanings as 'unshakeable, sound, resolute, powerful, fixed and safely put in place.' The word "kararin" also means 'location, stability, permanence and place of settlement.' These words very wisely describe the womb as a sound and safe location.

The mother's womb provides insulation against external agents, light and sound, and particularly protects the baby against shock and pressure. Located in the pelvic cavity, the womb is well protected by the thick and strong bones that surround 'endometrium' on the inside, helping bear the weight of the embryo until the end of pregnancy. This structure made up of powerful muscles is ideally constructed for the baby's growth and development. During pregnancy, the ligaments attaching the bones in the region together become thicker and longer. These ligaments that attach the top of the womb to the strong pelvic bones make the womb strong and stable.



The ligaments that tightly bind the bones together in the pelvic region can be seen.

The embryo also has a source of the heat, water, oxygen and nutrients it needs during the course of its development. The mother's womb undergoes many changes that enhance its strength during pregnancy. Together with the muscles, ligaments and elastic tissues it contains, there is also an increase in the number of blood vessels and nerves. The womb is thus able to increase 20 times in weight and 1,000 times in capacity without coming to any harm.¹ The fallopian tubes that support the womb, the ovaries and other connective tissues all expand and become more elastic.² The constant changes in the womb continue even after the embryo has grown into a healthy baby many hundreds of times larger than its initial state. The womb now changes in such a way as to permit the baby to exit in a healthy manner.

During pregnancy, another most miraculous state of affairs regarding the protection of the baby comes about. The baby is also protected against internal threats. When a foreign body enters the body, such as during an organ or bone marrow transplant, the host's defense system begins reacting, and this can sometimes lead to fatal consequences.³ But that never happens to the fetus, and the mother's immune system does not regard it as a foreign body. It is extraordinary how the mother's immune system tolerates foreign genes from the father; because the baby is 50% foreign body. Marianne van den Heuvel, a scientist from Guelph University, describes this as 'fascinating' and continues: 'That was always a puzzle from an immunology standpoint because the fetus is actually foreign. It's part of the mother and also part of the father. It should be rejected by the body.'⁴

One would expect the defense system, which identifies viruses and tumors as foreign bodies and kills them, also to declare war on the fetus's cells. But, by the will of Allah, no such thing happens, and the womb remains a very safe and secure place.

All the information about embryology provided in the Qur'an is in full agreement with modern medicine. This information, which has emerged through advanced technology, is one of the clearest proofs that the Qur'an is the revelation of our Lord, the Creator of all. It is also revealed in the Qur'an, which is full of information from hundreds of years ago that sheds light on the scientific world of today, that:

And in your creation and all the creatures He has spread about there are Signs for people with certainty. (Surat al-Jathiyah, 4)

¹ <http://health.howstuffworks.com/understanding-pregnancy-symptoms1.htm>

² <http://health.howstuffworks.com/understanding-pregnancy-symptoms1.htm>

³ <http://www.wch.sa.gov.au/research/releases/documents/lachlanyia06.pdf>

⁴ <http://www.uoguelph.ca/mediarelat/archives/002054.html>; Marianne van de Heuvel, "Biomedical Scientist Explores Role of Immune System in Pregnancy", *Communications and Public Affairs*, 20 November 2002.

THE SUN'S HYDROGEN AND HELIUM CONTENT

The Sun is made up of 70% hydrogen (H) and 28% helium (He) atoms.¹ Other substances make up less than 2%. Six hundred million tons of hydrogen are converted into 596 million tons of helium in the Sun every second. The remaining 4 million tons is given off as heat and light energy.² In that sense, the first thing that comes to mind when the Sun is mentioned is the letters H (hydrogen) and He (helium) that stand for the Sun. All the 15 verses in Surat ash-Shams of the Qur'an (Shams meaning 'Sun'), end in the letters H and E. The Arabic equivalent of these letters are:

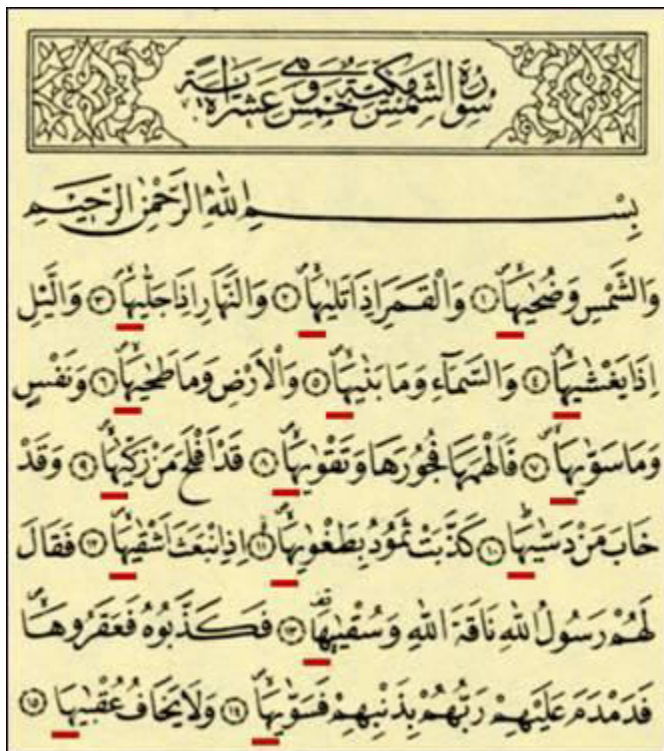


(The Arabic letter He) -



(The Arabic letter Elif)

The Arabic form of the verses in Surat ash-Shams and the final letters thereof can be seen below:



As can be seen, all the verses in Surat ash-Shams end in the letters He and Elif. The letter H stands for hydrogen and He for helium. No other Surah in the Qur'an ends in the letters HE in every verse from beginning to end. It is therefore extremely striking how only this Surah in the Qur'an ends in such a sequence of letters. Surat ash-Shams's number, 91, is also highly significant. Apart from hydrogen, there are 91 other elements in the Periodic Table, and these are made up of hydrogen elements. To put it another way, all atoms. From hydrogen, the lightest element, to the heaviest are intra-atomic combinations of hydrogen atoms. For that reason, the H (hydrogen) atom in the Sun makes up the other 91 elements in nature.³

Almighty Allah has created all the details in nature, and is still creating them. All our knowledge about such details is permitted to us in order for us to comprehend the omniscience of our Lord. In one verse, we are told:

Allah, there is no god but Him, the Living, the Self-Sustaining. He is not subject to drowsiness or sleep. Everything in the heavens and the earth belongs to Him. Who can intercede with Him except by His permission? He knows what is before them and what is behind them but they cannot grasp any of His knowledge save what He wills. His Footstool

encompasses the heavens and the earth and their preservation does not tire Him. He is the Most High, the Magnificent. (Surat al-Baqara, 255)

1 http://observe.arc.nasa.gov/nasa/exhibits/sun/sun_2.html; <http://www.nineplanets.org/sol.html>

2 http://observe.arc.nasa.gov/nasa/exhibits/sun/sun_5.html

3 <http://periodic.lanl.gov/elements/1.html>; William D. Harkins, "The Abundance of the Elements in Relation to the Hydrogen-Helium Structure of the Atoms", *Proceedings of the National Academy of Sciences of USA*, April 1916, Vol. 4, pp. 216–224.

OXIDATION IN THE BLOOD

No indeed! Rather what they have earned has rusted up their hearts. (Surat al-Mutaffifin, 14)

The term 'rusted' used to describe hearts in verse of Surat al-Mutaffifin may be a reference to biochemical reaction that takes place in the heart. (Allah knows the truth.) Rust is the result of iron reacting with oxygen – oxidation. The oxygen we absorb from the air is carried through the body thanks to the iron in the hemoglobin in the blood. During this process, the oxygen reacts with the iron in the blood. This means there is a constant process resembling rusting in the blood in the human body, and therefore in the heart, the center of the circulation system.

An excess of iron in the blood can even lead to premature aging in all the body's cells by causing rust-like oxidation.¹ In the disease known as 'hemochromatosis,' caused by excess iron accumulating in the body, iron produces a toxic effect and causes organs such as the liver to collapse. Since this is the result of iron oxidation, this phenomenon is often described as organs 'rusting' or 'rust accumulation' in organs.² In the journal **Science News** Dr. Sharon McDonnell describes the iron oxidation in cells making up organs as 'rusting'.³

Another reference says this about the disease: "...those with hemochromatosis absorb iron, storing it in their organs. Over time, it accumulates in toxic amounts, causing organs to fail because they literally rust." ⁴

It is only possible to identify the reaction of iron with oxygen in the body – oxidation in the blood – in laboratories with highly advanced equipment. The fact that such a comparison, so compatible with the scientific data, appears in the Qur'an is an evident miracle, given the time when the Qur'an was revealed. The fact that the Qur'an also contains countless other pieces of information all in agreement with modern science is another sign that it is the revelation of Omniscient Allah, our Lord and the Creator of all things.

¹ E. Griffiths, **Iron and Infection**, John Wiley & Sons, New York, 1987, pp. 1-25; <http://www.lewrockwell.com/orig/sardi10.html>

² Jane E. Brody, **The New York Times**, "Personal Health", 5 March 1997.

³ Kathleen Fackelmann, **Science News**, "Rusty origins: researchers identify the gene for iron-overload disease - hereditary hemochromatosis", 18 January 1997.

⁴ Deborah Weisberg, **Post Gazette**, "New center treats victims of chronic iron poisoning", 10 November 1998; <http://www.post-gazette.com/healthscience/19981110hemo1.asp>

THE QUIVERING AND SWELLING OF THE EARTH

And you see the earth dead and barren. Then, when We send down water onto it, it quivers and swells and sprouts with luxuriant plants of every kind. (Qur'an, 22:5)

The Arabic word for "quivers" is "ihtazzat," meaning "to set in motion, come alive, quiver, move, stir; the movement and stretching of a plant." The word "rabat," translated as "swells," bears the meanings "to increase, grow in number, swell, grow, develop, rise (of a plant), provision, fill with air." These

words describe in the most appropriate manner the changes that occur in the molecular structure of soil during rain.

The motion described in the verse is different from the movement of Earth's crust, such as when a portion of it moves to produce an earthquake, for it is only the soil particles that are moving. These particles are composed of layers, each of which is on top of the other. When water penetrates the layers, it causes the swelling of mud particles. The stages referred to in the verse can be scientifically explained as follows:

1. Quivering of the soil: The electrostatic charge on the particle surface that appears after the water falls on the soil in sufficient amount would cause its instability and quivering movements. This movement is stabilized only after this charge has been neutralized with an opposing one. The soil particle's moving and quivering is also due to its collision with water particles. Since the water particles move in no specific direction, the soil particles move as they are struck from all sides. Robert Brown, a Scottish botanist, discovered in 1827 that when raindrops fall on the soil, they cause a kind of shaking and vibration in the soil molecules. He described this movement of microscopic particles, which today is known as the "Brownian motion."¹

2. Swelling of the soil: When it rains, those raindrops hitting the soil cause its particles to swell and increase in volume. This is because when there is abundant water, the space between soil particles, which allows water particles and dissolved ions to enter, increases. When water and the nourishing elements dissolved in it diffuse between the layers, the size of the soil particles increases. Consequently, these particles serve as water deposits that bring the soil to life. It is due to Allah's infinite grace upon humanity that this water is stored in this manner without seeping downward due to the action of gravity. If the soil could not hold water and these mineral deposits could not be laid down in the soil, the water would soak into Earth's deepest parts and, because of its resulting absence, all plants would soon die. However, our Lord has created the soil in such a way that various products can emerge from it.

3. Sprouting of the earth: When there is enough water in the soil, the seeds become active and absorb simple nutritious material. Growing plants meet their water requirements for 2 to 3 months from these deposits.

The above verse describes, in three stages, what happens when rain falls onto dry ground: the soil particles quiver, and the soil swells and then brings forth various products. These stages, which the Qur'an revealed 1,400 years ago, are strikingly parallel to the scientific descriptions. Another verse reveals this about plants:

A sign for them is the dead land that We bring to life and from which We bring forth grain, of which they eat. (Qur'an, 36:33)

1. Brian J. Ford, "Brownian Movement in Clarkia Pollen: A Reprise of the First Observations," *The Microscope*, 1992, vol. 40, no. 4, pp. 235-241; <http://www.brianjford.com/wbbrowna.htm>

THE COMING OF THE UNIVERSE INTO EXISTENCE



Until the mid-20th century, the prevalent view across the world was that the universe was infinite, had existed forever and that it will continue to do so for all time. According to this view, known as the "static universe model," the universe had no end or beginning.

In maintaining that the universe is a collection of fixed, static and unchanging substances, this view has constituted the basis of materialist philosophy and has consequently rejected the existence of a Creator. However, as science and technology progressed during the 20th century, the static universe model has been completely uprooted.

We have now entered the 21st century and a new dawn is upon us. Through numerous experiments, observations and calculation conducted by some of the

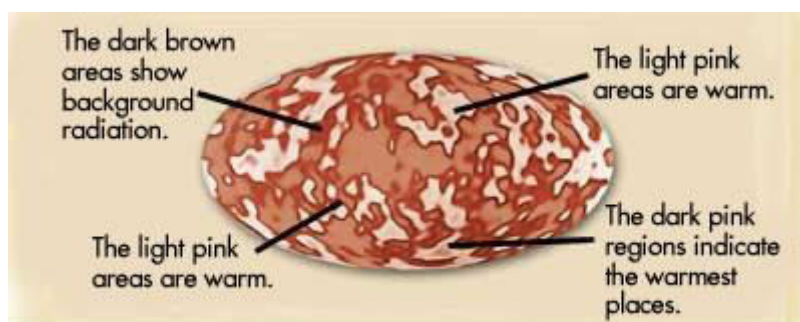
world's most prominent thinkers, modern physics has proven that the universe did indeed have a beginning, that it came into being from nothing in a single moment in a huge explosion. Furthermore, it has been established that the universe is not fixed and static, as materialists still stubbornly maintain. On the contrary, it is undergoing a constant process of movement, change and expansion. These recently-established facts all act as nails in the coffin of the static universe theory. Today, all these facts are universally accepted by the scientific community.

The origin of the universe is described in the Qur'an in the following verse:

He is the Originator of the heavens and the earth. (Qur'an, 6:101)

This information is in full agreement with the findings of contemporary scientists. As we stated earlier, the conclusion that astrophysics has reached today is that the entire universe, together with the dimensions of matter and time, came into existence as a result of a great explosion that occurred a long time ago. This event, known as "The Big Bang," is the catalyst for the creation of the universe from nothingness. This explosion, all parties in the scientific community agree, emanated from a single point some 15 billion years ago. (See Harun Yahya, *The Creation of the Universe*, Al-Attique Publishers Inc. Canada, 2000)

Before the Big Bang, there was no such thing as matter. From a condition of non-existence in which neither matter, nor energy, nor even time existed-and which can only be described metaphysically-matter, energy, and time were all created in an instant. This fact, only recently discovered by modern physics, was announced to us in the Qur'an 1,400 years ago.



The sensitive sensors on board the COBE space satellite, launched by NASA in 1992, captured evidentiary remnants of the Big Bang. This discovery served as evidence for the Big Bang, which is the scientific explanation of the fact that the universe was created from nothing.

THE EXPANSION OF THE UNIVERSE

In the Qur'an, which was revealed fourteen centuries ago at a time when the science of astronomy was still primitive, the expansion of the universe was described in the following terms:

And it is We Who have constructed the heaven with might, and verily, it is We Who are steadily expanding it. (Qur'an, 51:47)

The word "heaven," as stated in the verse above, is used in various places in the Qur'an. It is referring to space and the wider universe. Here again, the word is used with this meaning, stating that the universe "expands." The Arabic word "*moosiaaooona*" in the term "*inna lamoosiaaooona*," translated into English as "**it is We Who are steadily expanding it**", comes from the verb "*evsea*," meaning "to expand." The prefix "*la*" emphasises the following name or title and adds a sense of "to a great extent." This expression therefore means "We expand the sky or the universe to a great extent." This is the very conclusion that science has reached today. ¹



Edwin Hubble with his giant telescope



Georges Lemaitre

Until the dawn of the 20th century, the only view prevailing in the world of science was that "the universe has a constant nature and it has existed since infinite time." However, modern research, observations, and calculations carried out by means of modern technology have revealed that the universe in fact had a beginning and that it constantly "expands."

At the beginning of the 20th century, the Russian physicist Alexander Friedmann and the Belgian cosmologist Georges Lemaitre theoretically calculated that the universe is in constant motion and that it is expanding.

This notion was confirmed by the use of observational data in 1929. While observing the sky with a telescope, Edwin Hubble, the American astronomer, discovered that the stars and galaxies were constantly moving away from each other. This discovery is regarded as one of the greatest in the history of astronomy. During these observations, Hubble established that the stars emit a light that turns redder according to their distance. That is because according to the known laws of physics, light heading towards a point of observation turns violet, and light moving away from that point assumes a more reddish hue. During his observations, Hubble noted a tendency towards the colour red in the light emitted by stars. In short, the stars were moving further and further away, all the time. The stars and galaxies were not only moving away from us, but also from each other. A universe where everything constantly moves away from everything else implied a constantly expanding universe. The observations carried out in the following years verified that the universe is constantly expanding.



From the moment of the Big Bang, the universe has been constantly expanding at a great speed. Scientists compare the expanding universe to the surface of a balloon that is inflated.

In order to gain a clearer understanding of this, let us imagine the universe to be the surface of a balloon being inflated. In the same way that the more the balloon is inflated, the further away the points on its surface move from one another, celestial bodies also move away from one another as the universe expands. This was theoretically discovered by Albert Einstein, regarded as one of the greatest scientists of the 20th century. However, in order to avoid violating the "static universe model" that was generally accepted at that time, Einstein laid that discovery aside. He would later describe this as the greatest blunder of his life. 2

This fact was explained in the Qur'an in a time when telescopes and similar technological advancements were not even close to being invented. This is because the Qur'an is the Word of Allah: the Creator and Ruler of the entire universe.

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1. S. Waqar Ahmed Husaini, The Quran for Astronomy and Earth Exploration from Space 3rd ed. (New Delhi: Goodword Press: 1999), 103-108.
 2. www.time.com/time/time100/scientist/profile/hubble.html.

THE END OF THE UNIVERSE AND THE BIG CRUNCH



The Big Crunch theory proposes that the universe, that began expanding with the Big Bang, will collapse in on itself with increasing speed. According to the theory, this collapse of the universe will continue until the universe has lost all its mass and turned into a single point of infinite density.

Physicists have known that dark energy could become negative and the universe could collapse sometime in the very distant future... but now we see that we might be, not in the beginning, but in the middle of the life cycle of our universe. 4

This is how this scientific hypothesis of the Big Crunch is indicated in the Qur'an:

That Day We will fold up heaven like folding up the pages of a book. As We originated the first creation so We will regenerate it. It is a promise binding on Us. That is what We will do. (Qur'an, 21:104)

In another verse, this state of the heavens is described thus:

They do not measure Allah with His true measure. The whole earth will be a mere handful for Him on the Day of Rising the heavens folded up in His right hand. Glory be to Him! He is exalted above the partners they ascribe! (Qur'an, 39:67)

According to the Big Crunch theory, the universe will begin to collapse slowly and will then increasingly pick up speed. At the end of the process the universe will have infinite density and be infinitely hot and small. This scientific theory runs parallel to the Qur'anic explanation of this particular scientific concept. (Allah knows best)

3. Philip Ball, "Black Crunch Jams Universal Cycle," Nature, 23 December 2002; Dr. David Whitehouse, "Universe is 'doomed to collapse'," BBC News Online, 22 October 2002, <http://news.bbc.co.uk/1/hi/sci/tech/2346907.stm>; and Mark Schwartz, "Cosmic 'big crunch' could trigger an early demise of our universe," Stanford Report, 25 September 2002. [f](#)

4. Schwartz, "Cosmic 'big crunch' could trigger an early demise of our universe,"

CREATION FROM HOT SMOKE

Scientists today are able to observe the formation of stars from a hot gas cloud. Formation from a warm mass of gas also applies to the creation of the universe. The creation of the universe as described in the Qur'an confirms this scientific discovery in the following verse:

He placed firmly embedded mountains on it, towering over it, and blessed it and measured out its nourishment in it, laid out for those who seek it-all in four days. Then He turned to heaven when it was smoke and said to it and to the earth, "Come willingly or unwillingly." They both said, "We come willingly." (Qur'an, 41:10-11)



The picture represents the Big Bang, which revealed once again that Allah created the universe from nothingness. The Big Bang is a theory that has been proven with scientific evidence. Although some scientists tried to advance arguments against the Big Bang, scientific evidence has caused the Big Bang theory to be completely accepted by the scientific community.

The Arabic word for "smoke" in the above verse is "*dukhanun*," which describes the hot, cosmic smoke in question. This word in the Qur'an, in pinpoint fashion, describes this smoke very accurately for it is a warm body of gas containing mobile particles connected to solid substances. Here, the Qur'an has employed the most appropriate word from the Arabic language for describing the appearance of this phase of the universe. Let us note that only in the 20th century have scientists discovered that the universe emerged from a hot gas in the form of smoke. 5

The fact that such information about the creation of the universe is given in the Qur'an is nothing short of a miracle of the Qur'an.

5. Dr. Mazhar U. Kazi, 130 Evident Miracles in the Qur'an (New York, USA: Crescent Publishing House: 1998), 52. 

THE SPLITTING ASUNDER OF "THE HEAVENS AND THE EARTH"



Another verse about the creation of the heavens is as follows:

Do those who disbelieve not see that the heavens and the earth were sewn together and then We unstitched them and that We made from water every living thing? So will they not believe? (Qur'an, 21:30)

The word "*ratq*" translated as "*sewn to*" means "mixed in each, blended" in the Arabic vernacular. It is used to refer to two different substances that make up a whole. The phrase "we unstitched" is the verb "*fataqa*" in Arabic and implies that something comes into being by tearing apart or destroying the structure of things that are sewn to one another. The sprouting of a seed from the soil is one of the actions to which this verb is applied.

Let us take a look at the verse again. In the verse, sky and earth are at first subject to the status of "*ratq*." They are separated (*fataqa*) with one coming out of the other. Intriguingly, when we think about the first moments of the Big Bang, we see that the entire matter of the universe collected at one single point. In other words, everything—including "the heavens and earth" which were not created yet—were in an interwoven and inseparable condition. Then, this point exploded violently, causing its matter to disunite.

THE CREATION OF WHAT LIES BETWEEN THE HEAVENS AND THE EARTH

The Qur'an contains a great many verses concerning the creation of the earth, the heavens and what lies between:

We did not create *the heavens and earth and everything between them*, **except with truth. The Hour is certainly coming, so turn away graciously. (Qur'an, 15:85)**

Everything in the heavens and everything on the earth and everything in between them and everything under the ground belongs to Him. (Qur'an, 20:6)

We did not create *heaven and earth and everything in between them* **as a game. (Qur'an, 21:16)**

Scientists state that first of all, a mass of hot gas increased in density. This mass later divided into smaller parts to form galactic matter and later still, the stars and planets. To put it another way, the Earth along with stars around it, are all parts which separated from a united body of gas. Some of these parts brought the suns and planets into being, thus leading to the emergence of the many Solar Systems and galaxies. As we have set out in earlier sections of this book, the universe was first in a state of "**ratq**" (fusion: combined together, united) and then became "**fataqa**" (divided into parts). The emergence of the universe is described with the most suitable words in the Qur'an, in such a way as to confirm the scientific accounts. 6



On the occasion of every division, a few particles remained outside the new, fundamental bodies forming in space. The scientific name for these extra particles is "interstellar galactic material." Interstellar matter consists of 60% of hydrogen, 38% of helium and 2% of all other elements. 99% of the interstellar matter consists of interstellar gas and 1% of interstellar dust, which probably consists of heavy elements in small particles of 0,0001 to 0.001 mm in diameter. Scientists regard these substances as very important from the point of view of astrophysical measurements. These substances are so fine as to be capable of being regarded as dust, smoke or gas. However, when one considers these substances as a whole, they represent a larger mass than the total of all the galaxies in space. Although the existence of this interstellar galactic matter was only discovered in 1920, attention was drawn to the existence of these particles, described as "**ma baynahuma**"-translated as "everything between them"-hundreds of years ago in the Qur'an.7

6. Kazi, 130 Evident Miracles in the Qur'an, 53. [🔗](#)

7. Digitale Ausgabe LexiRom (Digital Expenditure LexiRom), Meyers Lexikon in drei Bänden (Meyers Encyclopedia in three volumes) (Mannheim: Bibliographisches Institut & F.A. Brockhaus AG: 1995). [🔗](#)



THE PERFECT EQUILIBRIUM IN THE UNIVERSE

He Who created the seven heavens in layers. You will not find any discrepancy in the creation of the All-Merciful. Look again-do you see any gaps? Then look again and again. Your sight will return to you dazzled and exhausted! (Qur'an, 67:3-4)

The billions of stars and galaxies in the universe move in perfect equilibrium in the paths set out for them. Stars, planets and satellites rotate not only around their own axes but also together with the systems of which they are an integral part. Sometimes,

galaxies containing 200-300 billion stars move across each others' paths. Yet amazingly, no collisions take place that might damage the great order in the universe. This miracle is something over which all of us should reflect.

In the universe, the concept of speed assumes giant dimensions when compared to earthly measurements. Stars, planets, galaxies and conglomerations of galaxies-whose numerical properties can only be conceived by mathematicians-weigh billions or trillions of tons, and move through space at extraordinary speeds.

For example, the Earth rotates at 1,670 kmph. If we consider that the fastest-moving bullet today possesses an average speed of 1,800 kmph, we can see how fast the Earth is moving, despite its enormous size and mass.

The speed of the Earth as it orbits the Sun is some 60 times faster than a bullet: 108,000 kmph. If we were able to construct a vehicle capable of moving at that speed, it would be able to circumnavigate the Earth in 22 minutes. These figures apply only to the Earth.

Those for the Solar System are even more fascinating. The speed of that system is such as to exceed the bounds of reason: The larger the systems in the universe, the greater their speed. The Solar System's speed of orbit around the centre of the galaxy is 720,000 kmph. The Milky Way, with its 200 billion or so stars, moves through space at 950,000 kmph.

There is no doubt that there is a very high risk of collisions in such a complicated and fast-moving system. Yet nothing of the sort actually happens and we continue with our lives in complete safety. That is because everything in the universe functions according to the flawless equilibrium set out by Allah. It is for this reason that, as stated in the verse, there is no "discrepancy" in the system.

THE FINE TUNING IN THE UNIVERSE

He Who created the seven heavens in layers. You will not find any flaw in the creation of the All-Merciful. Look again-do you see any gaps? Then look again and again. Your sight will return to you dazzled and exhausted! (Qur'an, 67:3-4)

Do you not see how He created seven heavens in layers? (Qur'an, 71:15)

He to Whom the kingdom of the heavens and the earth belongs. He does not have a son and He has no partner in the Kingdom. He created everything and determined it most exactly. (Qur'an, 25:2)

Materialist philosophy emerged with the claim that all the systems in nature and the universe were like machines that functioned on their own, that the flawless order and balance within them were the work of chance. However, today, the false nature of materialism and of Darwinism, its so-called scientific foundation, has been scientifically demonstrated. (See Harun Yahya, *The Evolution Deceit*, 8th ed., Taha Publishers, 2004 and *Darwinism Refuted*, Goodword Books, 2003.)

The scientific discoveries of the 20th century that followed swiftly, one after the other, in the fields of astrophysics and biology have proved that life and the universe were created. As the theses of Darwinism collapsed, the Big Bang theory has shown that the universe was created from nothing. Discoveries have revealed that there is a great design and fine-tuning in the material world and this has categorically demonstrated the groundless nature of the claims of materialism.

Considering the conditions necessary for life, we see that only the Earth meets these particular conditions. For an environment suitable for life, there are innumerable conditions taking place simultaneously and unceasingly all around us. There are some hundred billion galaxies, each with-on average-a hundred billion stars. In all the galaxies, there are perhaps as many planets as stars.⁸ In the face of such overpowering numbers, one can better comprehend the significance of the formation of such an exceptional environment on the Earth.

From the force of the Big Bang explosion to the physical values of atoms, from the levels of the four basic forces to the chemical processes in the stars, from the type of light emitted by the Sun to the level of viscosity of water, from the distance of the Moon to the Earth to the level of gases in the

atmosphere, from the Earth's distance from the Sun to its angle of tilt to its orbit, and from the speed at which the Earth revolves around its own axis to the functions of the oceans and mountains on the Earth: every single detail is ideally suited to our lives. Today, the world of science describes these features by means of the concepts of the "Anthropic Principle" and "Fine-Tuning." These concepts summarise the way that the universe is not an aimless, uncontrolled, chance collection of matter but that it has a purpose directed towards human life and has been designed with the greatest precision.

Attention is drawn in the above verses to the measure and harmony in Allah's creation. The word "*taqdeeran*," meaning "to design, measure, create by measuring," is employed in Qur'anic verses such as Surat al-Furqan 2. The word "*tibaqan*," meaning "in harmony," is used in Surat al-Mulk 3 and Surah Nuh 15. Furthermore, Allah also reveals in Surat al-Mulk with the word "*tafawutin*," meaning "disagreement, violation, non-conformity, disorder, opposite," that those who seek disharmony will fail to find it.

The term "fine-tuning," which began to be used towards the end of the 20th century, represents this truth revealed in the verses. Over the last quarter-century or so, a great many scientists, intellectuals and writers have shown that the universe is not a collection of coincidences. On the contrary, it has an extraordinary design and order ideally suited to human life in its every detail. (See Harun Yahya, *The Creation of the Universe*, Al-Attique Publishers, November 2002 and *A Chain of Miracles*, Global Publishing, May 2004.) Many features in the universe clearly show that the universe has been specially designed to support life. The physicist Dr. Karl Giberson expresses this fact thus:

In the 1960s, some physicists observed that our universe appears to have been **fine-tuned** for the existence of human life. 9

The British astrophysicist Professor George F. Ellis refers to this fine-tuning in these terms:

Amazing fine tuning occurs in the laws that make this [complexity] possible. Realization of the complexity of what is accomplished makes it very difficult not to use the word "miraculous" without taking a stand as to the ontological status of the word. 10

*Everything in the heavens and everything in the earth belongs to Allah. All matters return to Allah.
(Qur'an, 3:109)*

The speed of the Big Bang explosion:

The balances established with the Big Bang, the instantaneous formation of the universe, are one of the proofs that the universe did not come into being by chance. According to the well-known Adelaide University professor of mathematical physics Paul Davies, if the rate of expansion that took place following the Big Bang had been just one in a billion billion parts different ($1/10^{18}$), the universe could not have come into being.¹¹ In his book *A Brief History of Time*, Stephen Hawking recognises this extraordinary precision in the universe's rate of expansion:

If the rate of expansion one second after the big bang had been smaller by even one part in a hundred thousand million million, the universe would have recollapsed before it ever reached its present size. 12

The Four Forces:

All physical motion in the universe comes about thanks to the interaction and equilibrium of the four forces recognised by modern physics: gravity, electromagnetic force, strong nuclear force and weak nuclear force. These forces possess extraordinarily different values to one another. Michael Denton, the famous molecular biologist, describes the extraordinary equilibrium among these forces thus:

If, for example, the gravitational force was a trillion times stronger, then the universe would be far smaller and its life history far shorter. An average star would have a mass a trillion times less than the sun and a life span of about one year. On the other hand, if gravity had been less powerful, no stars or galaxies would have ever formed. The other relationships and values are no less critical. If the strong force had been just slightly weaker, the only element that would be stable would be hydrogen. No

other atoms could exist. If it had been slightly stronger in relation to electromagnetism, then an atomic nucleus consisting of only two protons would be a stable feature of the universe-which would mean there would be no hydrogen, and if any stars or galaxies evolved, they would be very different from the way they are. Clearly, if these various forces and constants did not have precisely the values they do, there would be no stars, no supernovae, no planets, no atoms, no life. 13

The Distances between Celestial Bodies:

The distribution of celestial bodies in space and the enormous spaces between them are essential to the existence of life on Earth. The distances between celestial bodies have been set out in a calculation compatible with a great many powerful universal forces in such a way as to support life on Earth. In his book *Nature's Destiny* Michael Denton describes the distance between supernovae and stars:

The distances between supernovae and indeed between all stars is critical for other reasons. The distance between stars in our galaxy is about 30 million miles. If this distance was much less, planetary orbits would be destabilized. If it was much more, then the debris thrown out by a supernova would be so diffusely distributed that planetary systems like our own would in all probability never form. If the cosmos is to be a home for life, then the flickering of the supernovae must occur at a very precise rate and the average distance between them, and indeed between all stars, must be very close to the actual observed figure. 14

Gravity:

- If gravity were stronger, excessive ammonia and methane would collect in the Earth's atmosphere, which would have a most damaging effect on life.

- If it were weaker, the Earth's atmosphere would lose excessive quantities of water, making life impossible.

The Earth's Distance from the Sun:

- If this were any greater, the planet would grow very cold, the water cycle in the atmosphere would be affected, and the planet would enter an ice-age.

- If the Earth were any closer to the Sun, plants would burn up, the water cycle in the Earth's atmosphere would be irreparably damaged, and life would become impossible.-

The Thickness of the Earth's Crust:

- If the crust were any thicker, then an excessive amount of oxygen would be transferred to it from the atmosphere.

- If it were any thinner, the resulting amount of volcanic activity would make life impossible.

The Speed at which the Earth Revolves:

If this were any slower, the temperature difference between day and night would grow enormously.

- If it were any faster, then atmospheric winds would reach enormous speeds, and cyclones and storms would make life impossible.

The Earth's Magnetic Field:

- If this were any more powerful, very strong electromagnetic storms would arise.

- If it were any weaker, then the Earth would lose its protection against the harmful particles given off by the Sun and known as solar winds. Both situations would make life impossible.-

The Albedo Effect (Ratio between the amount of light the Earth reflects and the amount of light that is absorbed):

- If this were any greater, an ice-age would rapidly result.
- If it were any less, the greenhouse effect would lead to excessive warming. The Earth would first be flooded with the melting of the glaciers, and would then burn up.-

The Proportion of Oxygen and Nitrogen in the Atmosphere:

- If this were any greater, vital functions would be adversely accelerated.
- If it were any less, vital functions would adversely slow down.

The Proportion of Carbon Dioxide and Water in the Atmosphere:

- If this were any greater, the atmosphere would overheat.
- If it were any less, the temperature of the atmosphere would fall.

The Thickness of the Ozone Layer:

- If this were any greater, the Earth's temperature would fall enormously.
- If it were any less, the Earth would overheat and be defenceless against the harmful ultraviolet rays emitted by the Sun.

Seismic Activity (Earthquakes):

- If this were any greater, there would be constant upheaval for living things.
- If it were any less, the nutrients at the sea bottom would fail to spread into the water. This would have a damaging effect on life in the seas and oceans and all living things on Earth.-

The Earth's Angle of Tilt:

The Earth has a 23 degree angle of inclination to its orbit. It is this inclination that gives rise to the seasons. If this angle were any greater or any less than it is now, the temperature difference between the seasons would reach extreme dimensions, with unbearably hot summers and bitterly cold winters.

The Size of the Sun:

A smaller star than the Sun would mean the Earth would freeze and a larger star would lead to its burning up.

The Attraction between the Earth and the Moon:

- If this were any greater, the powerful attraction of the Moon would have extremely serious effects on atmospheric conditions, the speed at which the Earth revolves around its own axis and on the ocean tides.
- If it were any less, this would lead to extreme climate changes.-

The Distance between the Earth and the Moon:

- If they were just a little closer, the Moon would crash into the Earth.
- If they were any further, the Moon would become lost in space.
- If they were even a little closer, the Moon's effect on the Earth's tides would reach dangerous dimensions. Ocean waves would inundate low-lying areas. The friction emerging as a result of this

would raise the temperature of the oceans and the sensitive temperature balance essential to life on Earth would disappear.

- If they were even a little further away, the tides would decrease, leading the oceans to be less mobile. Immobile water would endanger life in the seas, and the level of the oxygen we breathe would be endangered. 15

The kingdom of the heavens and earth belongs to Allah. Allah has power over all things. In the creation of the heavens and the earth, and the alternation of night and day, there are Signs for people with intelligence.
(Qur'an, 3:189-190)

The Temperature of the Earth and Carbon-Based Life:

The existence of carbon, the basis of all life, depends on the temperature remaining within specific limits. Carbon is an essential substance for organic molecules such as amino-acid, nucleic acid and protein: These constitute the basis of life. For that reason, life can only be carbon-based. Given this, the existing temperature needs to be no lower than -20 degrees and no higher than 120 degrees Celsius. These are just the temperature limits on Earth.

These are just a few of the exceedingly sensitive balances which are essential for life on Earth to have emerged and to survive. Yet even these are sufficient to definitively reveal that the Earth and the universe could not have come into being as the result of a number of consecutive coincidences. The concepts of "fine-tuning" and the "anthropic principle" that began to be employed in the 20th century are further evidence of Allah's creation. The harmony and proportion therein were described with magnificent accuracy fourteen centuries ago in the Qur'an.

8. Carl Sagan, Cosmos (Avenel, NJ: Wings Books: April 1983), 5-7. [↑](#)

9. Karl Giberson, "The Anthropic Principle," Journal of Interdisciplinary Studies 9 (1997). [↑](#)

10. George F. Ellis, "The Anthropic Principle: Laws and Environments," The Anthropic Principle, F. Bertola and U. Curi (New York: Cambridge University Press: 1993), 30. [↑](#)

11. Paul Davies, Superforce: The Search for a Grand Unified Theory of Nature, 1984, 184. [↑](#)

12. Stephen Hawking, A Brief History of Time (London: Bantam Press: 1988), 121-125. [↑](#)

13. Michael Denton, Nature's Destiny: How the Laws of Biology Reveal Purpose in the Universe (New York: The Free Press: 1998), 12-13. [↑](#)

14. Ibid., 11. [↑](#)

15. www.pathlights.com/ce_encyclopedia/01-ma10.htm#Elemental Forces. [↑](#)

THE STRUCTURAL DIFFERENCES BETWEEN THE SUN, THE MOON AND THE STARS

We built seven firm layers above you. We installed a blazing lamp. (Qur'an, 78:12-13)

As we know, the only source of light in the Solar System is the Sun. With advances in technology, astronomers discovered that the Moon was not a source of light but that it merely reflects the light reaching it from the Sun. The expression "lamp" in the above verse is a translation of the Arabic word "*sirajan*," which most perfectly describes the Sun, the source of light and heat.



In the Qur'an Allah employs different words when referring to such celestial bodies as the Moon, the Sun and the stars. This is how the differences between the structures of the Sun and Moon are expressed in the Qur'an:

Do you not see how He created seven heavens in layers, and placed the moon as a light in them and made the sun a blazing lamp? (Qur'an, 71:15-16)



In the above verse, the word "light" is used for the Moon ("**nooran**" in Arabic) and the word "lamp" for the Sun ("**sirajan**" in Arabic.) The word used for the Moon refers to a light-reflecting, bright, motionless body. The word used for the Sun refers to a celestial body which is always burning, a constant source of heat and light.

On the other hand, the word "star" comes from the Arabic root "**nejeme**," meaning "appearing, emerging, visible." As in the verse below, stars are also referred to by the word "**thaqib**," which is used for that which shines and pierces the darkness with light: self-consuming and burning:

It is the star that pierces through darkness! (Qur'an, 86:3)

We now know that the Moon does not emit its own light but reflects that reaching it from the Sun. We also know that the Sun and stars do emit their own light. These facts were revealed in the Qur'an in an age when mankind simply did not have the means to make scientific discoveries of their own accord. It was an age when peoples' knowledge of celestial bodies was severely restricted, to say the least. This further emphasises the miraculous nature of the book of Islam.

ORBITS AND THE ROTATING UNIVERSE

One of the most important reasons for the great equilibrium in the universe is the fact that celestial bodies follow specific paths. Stars, planets and satellites all rotate around their own axes and also rotate together with the system of which they are a part. The universe functions within a finely-tuned order, just like the wheels in a factory.

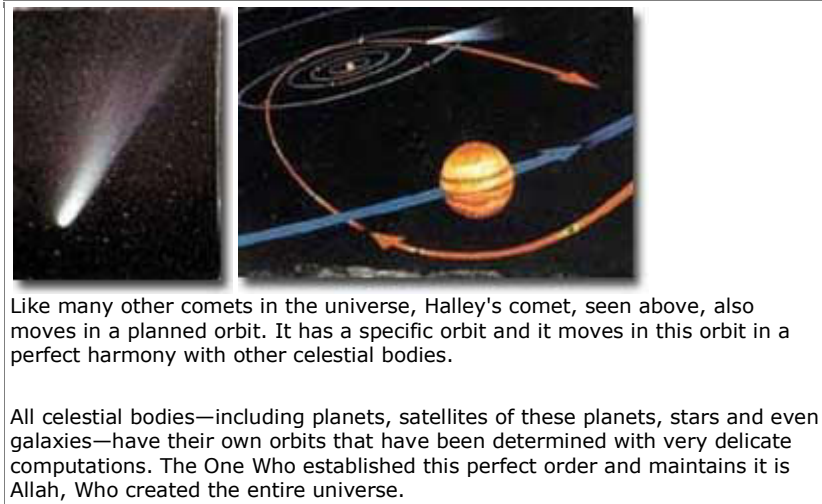
There are more than 100 billion galaxies in the visible universe and each small galaxy contains approximately a billion stars. Furthermore, each big galaxy contains more than a trillion. 16 Many of these stars have planets and many of those planets have satellites. All these celestial bodies follow the most finely calculated paths and orbits. For millions of years, each one has been moving in its own path in flawless harmony with all the others. In addition to these, there are also a great many comets moving along in their own pre-determined paths.

In addition, the paths in the universe are not restricted to a few celestial bodies. The Solar System and even other galaxies also exhibit considerable motion around other centres. Every year, Earth, and the Solar System with it, move some 500 million km from where they were the previous year. It has been calculated that even the slightest deviation from celestial bodies' paths could have drastic consequences which might spell the end of the entire system. For example, the consequences of the earth's deviating from its course by a mere 3 mm have been described in one source as follows:



While rotating around the sun, the earth follows such an orbit that, every 18 miles, it only deviates 2.8 millimetres from a direct course. The orbit followed by the earth never changes, because even a deviation of 3 millimetres would cause catastrophic disasters: If the deviation were 2.5 mm instead of 2.8 mm, then the orbit would be very large, and all of us would freeze. If the deviation were 3.1 mm, we would be scorched to death. 17

Another characteristic of heavenly bodies is that they also rotate around their own axes. The verse which reads "**[I swear] by Heaven with its cyclical systems,**" (Qur'an, 86:11) indicates this truth. Naturally, at the time when the Qur'an was revealed, people had no telescopes with which to study bodies millions of kilometres away in space, advanced observation technology or our modern knowledge of physics and astronomy. It was therefore impossible to establish that space had "**its oscillating orbits,**" (Qur'an, 51:7) as described in the verse. The Qur'an however, revealed at that time, provided clear information concerning that fact. This is proof that this book is indeed Allah's Word.



16. World Book Encyclopedia, 2003; contributor: Kenneth Brecher, Ph.D., Professor of Astronomy and Physics, Boston University. [↑](#)
 17. Bilim ve Teknik (Journal of Science and Technology), July 1983. [↑](#)

THE SUN'S TRAJECTORY

It is stressed in the Qur'an that the Sun and Moon follow specific trajectories:

It is He Who created night and day and the sun and moon, each one swimming in a sphere. (Qur'an, 21:33)

The word "swim" in the above verse is expressed in Arabic by the word "**sabaha**" and is used to describe the movement of the Sun in space. The word means that the Sun does not move randomly through space but that it rotates around its axis and follows a course as it does so. The fact that the Sun is not fixed in position but rather follows a specific trajectory is also stated in another verse:

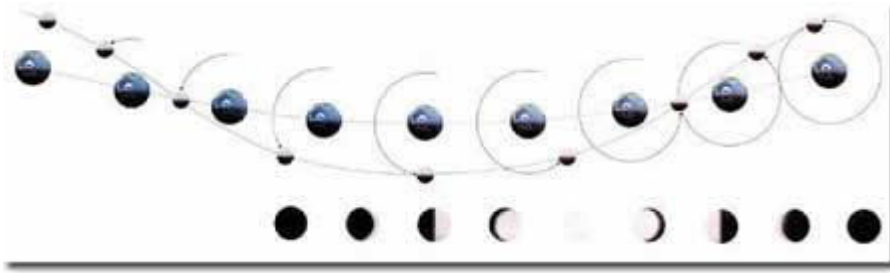


And the sun runs to its resting place. That is the decree of the Almighty, the All-Knowing. (Qur'an, 36:38)

These facts set out in the Qur'an were only discovered by means of astronomical advances in our own time. According to astronomers' calculations, the Sun moves along a path known as the Solar Apex in the path of the star Vega at an incredible speed of 720,000 kmph. In rough terms, this shows that the Sun traverses some 17.28 million km a day. As well as the Sun itself, all the planets and satellites within its gravitational field also travel the same distance.

THE MOON'S ORBIT

And We have decreed set phases for the moon, until it ends up looking like an old date branch. It is not for the sun to overtake the moon nor for the night to outstrip the day; each one is swimming in a sphere. (Qur'an, 36:39-40)



The Moon does not follow a regular orbit like the satellites of other planets. As it orbits the Earth, it sometimes moves behind it and sometimes in front. As it also moves with the Earth around the Sun, it actually follows a constant pattern resembling the letter "S" in space. This route, traced by the Moon in space, is described in the Qur'an as resembling an old date branch and does indeed resemble the twisted form of the date tree branch. Indeed, the word "urjoon" employed in the Qur'an refers to a thin and twisted date branch and is used to describe that part left after the fruit has been picked. The way that this branch is described as "old" is also most appropriate since old date branches are thinner and more twisted.



Since the Moon revolves around the Sun together with the Earth, it follows a path through space which resembles the letter "S." The appearance of this orbit resembles the twisted shape of a dry date branch, as is revealed in the Qur'an.

There is no doubt that it was impossible for anyone to have any knowledge about the orbit of the Moon 1,400 years ago. The way that this pattern, identified by modern technology and accumulated knowledge, was revealed in the Holy Book is yet another scientific miracle of the Qur'an.

CALCULATING THE LUNAR YEAR

It is He Who appointed the sun to give radiance, and the moon to give light, assigning it phases so you would know the number of years and the reckoning of time. Allah did not create these things except with truth. We make the Signs clear for people who know. (Qur'an, 10:5)

And We have decreed set phases for the moon, until it ends up looking like an old date branch. (Qur'an, 36:39)



In the first of the above verses, Allah has clearly revealed that the Moon will be a means of measurement for people to calculate the year. Furthermore, our attention is also drawn to the fact that these calculations will be performed according to the positions of the Moon as it revolves in its orbit. Since the angles between the Earth and Moon and the Moon and Sun constantly change, we see the Moon in different forms at different times. Furthermore, our ability to see the Moon is made possible by the fact that it is illuminated by the Sun. The amount of the lighted half of the Moon we see from Earth

changes. Bearing in mind these changes, a number of calculations can be made, making it possible for human beings to measure the year.

In former times a month was calculated as the time between two full moons, or the time it took the Moon to travel around the Earth. According to this, one month was equal to 29 days, 12 hours and 44 minutes. This is known as the "lunar month." Twelve lunar months represent one year, according to the Hijri calendar. However, there is a difference of eleven days between the Hijri calendar and the Gregorian calendar, in which a year is the time it takes the Earth to orbit the Sun. Indeed, attention is drawn to this difference in another verse:

They stayed in their Cave for three hundred years and added nine. (Qur'an, 18:25)

We can clarify the time referred to in the verse thus: 300 years x 11 days (the difference which forms every year) = 3,300 days. Bearing in mind that one solar year lasts 365 days, 5 hours, 48 minutes and 45.5 seconds, $3,300 \text{ days} / 365.24 \text{ days} = 9 \text{ years}$. To put it another way, 300 years according to the Gregorian calendar is equal to 300+9 years according to the Hijri calendar. As we can see, the verse refers to this finely calculated difference of 9 years. (Allah knows best.) There is no doubt that the Qur'an, which contains such pieces of information, which transcended the everyday knowledge of the time, is a miraculous revelation.

THE FORCE OF GRAVITY AND ORBITAL MOVEMENTS

No! I swear by the planets-that recede, that ride their course [and] hide themselves. (Qur'an, 81: 15-16)

The word "**khunnas**" in Surat at-Takwir 15 bears such meanings as shrinking and cowering, retracting and turning back. The Arabic expression translated as "hide themselves" in the 16th verse is "kunnas." The word "**kunnas**" is the plural form of "**kanis**" and refers to a specific path: entering a nest, the home of a body in motion or things entering their homes and hiding there. Again in verse 16, the word "aljawari," the plural form of the word "**jariya**" which means one that moves and flows, is translated as "that ride their course." Bearing in mind the meaning of these words, it is very possible that these verses refer to the gravitational forces of the planets and their movements around their orbits.



These words in the above verses fully describe orbital movements stemming from the force of gravity. Of these, the word "**khunnas**" refers to the planets' attraction towards their own centres and also their attraction towards the Sun, which is the centre of our Solar System. (Allah knows best.) The force of gravity already existed in the universe-although it was only possible to reveal this attractive force with mathematical formulae with Sir Isaac Newton, who lived in the 17th and 18th centuries. The word "**aljawari**" in the following verse emphasises the orbital movements that arise as a result of the centrifugal force that opposes this attractive one. There is no doubt that the use of the word "**aljawari**" together with "**khunnas**" (attraction towards the centre, shrinkage) and "**kunnas**" (path, entering the nest, the home of a body in motion) indicates an important scientific truth that nobody could have known about 1,400 years ago. (Allah knows best.) Moreover, these verses, one of the subjects sworn on in the Qur'an, are another indication of the importance of the subject.

THE ROUNDNESS OF THE EARTH



He has created the Heavens and the Earth for Truth. He wraps the night up in the day, and wraps the day up in the night. (Qur'an, 39:5)

In the Qur'an, the words used for describing the universe are quite remarkable. The Arabic word which is translated as "to wrap" in the

above verse is "**takwir**." In English, it means "to make one thing lap over another, folded up as a garment that is laid away." For instance, in Arabic dictionaries this word is used for the action of wrapping one thing around another, in the way that a turban is put on. The information given in the verse about the day and the night wrapping each other up includes accurate information about the shape of the world. This can be true only if the Earth is round. This means that in the Qur'an, which was revealed in the 7th century, the roundness of the world was hinted at.

However, it should be remembered that the understanding of astronomy of the time perceived the world differently. It was then thought that the world was a flat plane and all scientific calculations and explanations were based on this belief. However, the Glorious Qur'an has employed the most definitive words when it came to describing the universe. These facts, which we could only correctly fathom in our century, have been in the Qur'an for a vast length of time.

THE EARTH'S DIRECTION OF ROTATION

You will see the mountains and reckon them to be solid; but they go past like clouds-the handiwork of Allah Who gives to everything its solidity. He is aware of what you do. (Qur'an, 27:88)

The above verse emphasises that the Earth not only rotates but that it also has a direction of rotation. The direction of movement of the main cloud masses at 3,500-4,000 metres high is always from West to East. That is why it is generally the state of the weather in the West which is looked at in meteorological forecasts.¹⁸

If only they had believed and had fear [and awareness of Allah]!

*A reward from Allah is better, if they only knew.
(Qur'an, 2:103)*

*Do you not know that Allah is He to Whom the kingdom of the heavens and the earth belongs and that, besides Allah, you have no protector and no helper?
(Qur'an, 2:107)*

The main reason why cloud masses are pulled from West to East is the direction in which the Earth rotates. As we now know, our Earth spins from West to East. This scientific fact, only recently established by science, was revealed 1,400 years ago in the Qur'an, at a time when the Earth was believed to be flat, and to be resting on the back of an ox.

18. "Effects of Rotation (Coriolis Effect)," The Woodrow Wilson National Fellowship Foundation, www.woodrow.org/teachers/esi/1998/p/weather/Coriolis.HTM. 

THE EARTH'S GEOID SHAPE

After that He smoothed out the earth. (Qur'an, 79:30)

In the above verse, the word "**daha**" is used in the original Arabic. It, translated as "smoothed out," comes from the word "**dahv**," meaning "to spread." Although the word "**dahv**" also means to cover or to set out, the meaning of the verb is more than just a prosaic setting out, since it describes setting out in a circle.



The concept of roundness is also present in other words derived from "**dahv**." For example, the word "**dahv**" also refers to children dropping a ball into a hole in the ground, games involving throwing stones into holes and games played with walnuts. Words derived from that root are also used for an ostrich making a nest, cleaning stones from where it is about to lie down, the place where it lays its eggs and the egg itself.

Indeed, the Earth is round, in a manner reminiscent of an egg. The slightly flattened spherical shape of the Earth is known as geoid. From that point of view, the use of the word "**daha**" contains important information about the shape that Allah has given to the Earth. For hundreds of years, people imagined the Earth to be completely flat and only learned the truth thanks to technology. Yet, this fact was revealed in the Qur'an fourteen centuries ago.

THE DIAMETERS OF THE EARTH AND SPACE

Company of jinn and men, if you are able to pierce through the confines of the heavens and earth, pierce through them. You will not pierce through except with a clear authority. (Qur'an, 55:33)



Edwin Hubble

The Arabic word translated as "confines" in the above verse is "*aqtar*." This is the plural form of the word "*qutr*," meaning diameter and refers to the skies and the Earth having many diameters. It is possible in Arabic to tell from the form in which a word is used whether it is singular, plural (more than two), or employed in a dual form. Therefore, the form of the word used here, the plural, refers to another piece of miraculous information.

A three-dimensional body can only be said to have a single diameter if it is perfectly spherical. The term "diameters" can only refer to an irregular but basically spherical shape. This word chosen in the Qur'an-diameters-is important from the point of view of indicating the geoid shape of the Earth. The second noteworthy subject in the verse is that the Earth and the heavens are mentioned separately in reference to diameters.

According to Albert Einstein's General Theory of Relativity, the universe is expanding. But this does not mean that the galaxies and other heavenly bodies are being dispersed in space. This means that space is expanding and that the distance between the galaxies is increasing.

The definition of the "**confines of the heavens**" in Surat ar-Rahman 33 indicates the spherical structure of space. (Allah knows best.) In the same way that the diameters of space will be different from different points in space, so the diameters of a constantly expanding space will also display differences. From that point of view the use of the plural form of the word confine is full of wisdom, and is one of the indications that the Qur'an is the revelation of our Omniscient Lord.

... [T]he sun and moon and stars are subservient to His command. Both creation and command belong to Him. Blessed be Allah, the Lord of all the worlds. (Qur'an, 7:54)

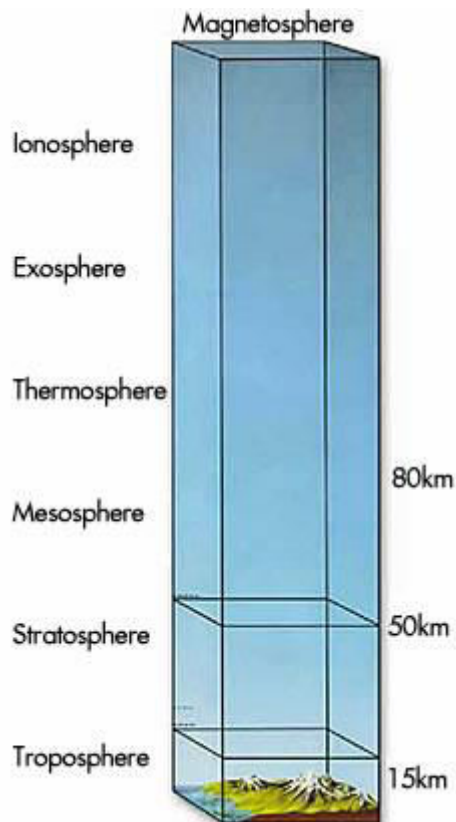
THE LAYERS OF THE ATMOSPHERE

One fact about the universe revealed in the verses of the Qur'an is that the sky is made up of seven layers:

It is He Who created everything on the earth for you and then directed His attention up to heaven and arranged it into seven regular heavens. He has knowledge of all things. (Qur'an, 2:29)

Then He turned to heaven when it was smoke. In two days He determined them as seven heavens and revealed, in every heaven, its own mandate. (Qur'an, 41:11-12)

The word "heavens," which appears in many verses in the Qur'an, is used to refer to the sky above the Earth, as well as the entire universe. Given this meaning of the word, it is seen that the Earth's sky, or the atmosphere, is made up of seven layers.



Today, it is known that the world's atmosphere consists of different layers that lie on top of each other.¹⁹ Based on the criteria of chemical contents or air temperature, the definitions made have determined the atmosphere of the earth as seven layers.²⁰ According to the "Limited Fine Mesh Model (LFMMII)," a model of atmosphere used to estimate weather conditions for 48 hours, the atmosphere is also 7 layers. According to the modern geological definitions the seven layers of atmosphere are as follows:

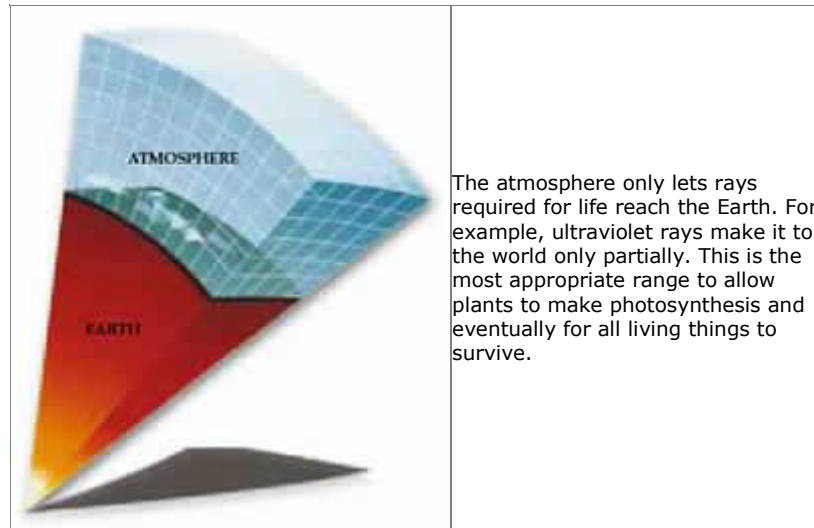
1. Troposphere
2. Stratosphere
3. Mesosphere
4. Thermosphere
5. Exosphere
6. Ionosphere
7. Magnetosphere

The Qur'an says, "[He] revealed, in every heaven, its own mandate," in Surah Fussilat 12. In other words, Allah is stating that He assigned each heaven its own duty. Truly, as will be seen in following chapters, each one of these layers has vital duties for the benefit of human kind and all other living things on the Earth. Each layer has a particular function, ranging from forming rain to preventing harmful rays, from reflecting radio waves to averting the harmful effects of meteors.

The verses below inform us about the appearance of the seven layers of the atmosphere:

Do you not see how He created seven heavens in layers? (Qur'an, 71:15)

He Who created the seven heavens in layers... (Qur'an, 67:3)



The Arabic word "*tibaqan*" in these verses, translated into English as "layer" means "layer, the appropriate cover or covering for something," and thus stresses how the top layer is well suited to the lower. The word is also used in the plural here: "layers." The sky, described in the verse as being in layers, is without doubt the most perfect expression of the atmosphere. It is a great miracle that these facts, which could not possibly be discovered without the technology of the 20th century, were explicitly stated by the Qur'an 1,400 years ago.

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19. Michael Pidwirny, "Atmospheric Layers," 1996, <http://royal.okanagan.bc.ca/mpidwirn/atmosphereandclimate/atmslayers.html>.
20. "Numerical Prediction Models used by NWS," Integrated Publishing, www.tpub.com/weather3/4-27.htm.

THE PROTECTED ROOF

In the Qur'an, Allah calls our attention to a very important attribute of the sky:

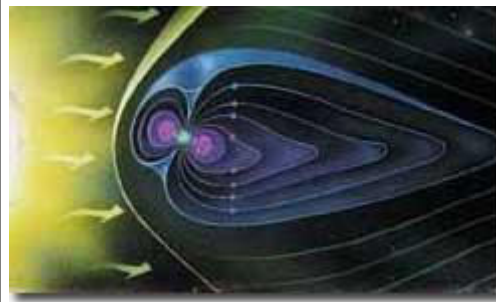
We made the sky a preserved and protected roof yet still they turn away from Our Signs. (Qur'an, 21:32)

This attribute of the sky has been proved by scientific research carried out in the 20th century: The atmosphere surrounding the Earth serves crucial functions for the continuity of life. While destroying many meteors-big and small-as they approach the Earth, it prevents them from falling to Earth and harming living things.

In addition, the atmosphere filters the light rays coming from space that are harmful to living things. The most striking feature of the atmosphere is that it lets only harmless and useful rays-visible light, near ultraviolet light and radio waves pass through. All of this radiation is vital for life. Near ultraviolet rays, which are only partially let in by the atmosphere, are very important for the photosynthesis of plants and for the survival of all living beings. The majority of the intense ultraviolet rays emitted from the Sun are filtered out by the ozone layer of the atmosphere. Only a limited and essential part of the ultraviolet spectrum reaches the Earth.

The protective function of the atmosphere does not end here. The atmosphere also protects the earth from the freezing cold of the space, which is approximately -270°C.

It is not only the atmosphere that protects the Earth from harmful effects. In addition to the atmosphere, the Van Allen Belt-the layer caused by the magnetic field of the Earth-also serves as a shield against the harmful radiation that threatens our planet. This radiation, which is constantly emitted by the Sun and other stars, is deadly to living things. If the Van Allen belt did not exist, the massive outbursts of energy called solar flares that frequently occur in the Sun would destroy all life on Earth.



The magnetosphere layer, formed by the magnetic field of the Earth, serves as a shield protecting the Earth from celestial bodies, harmful cosmic rays and particles. In the above picture, this magnetosphere layer, which is also named Van Allen Belts, is seen. These belts at thousands of kilometres above the Earth protect the living things on the Earth from the fatal energy that would otherwise reach it from space.

All these scientific findings prove that the world is protected in a very particular way. The important thing is that this protection was made known in the Qur'an in the verse "We made the sky a preserved and protected roof" fourteen centuries ago.

On the importance of the Van Allen Belt, Dr. Hugh Ross says:

In fact, the Earth has the highest density of any of the planets in our Solar System. This large nickel-iron core is responsible for our large magnetic field. This magnetic field produces the Van-Allen radiation shield, which protects the Earth from radiation bombardment. If this shield were not present, life would not be possible on the Earth. The only other rocky planet to have any magnetic field is Mercury-but its field strength is 100 times less than the Earth's. Even Venus, our sister planet, has no magnetic field. The Van-Allen radiation shield is a design unique to the Earth.²¹

The energy transmitted in just one of these bursts detected in recent years was calculated to be equivalent to 100 billion atomic bombs, each akin to one dropped on Hiroshima at the end of World War II. Fifty-eight hours after the burst, it was observed that the magnetic needles of compasses displayed unusual movement and 250 kilometres above the Earth's atmosphere, the temperature suddenly increased to 2,500°C.



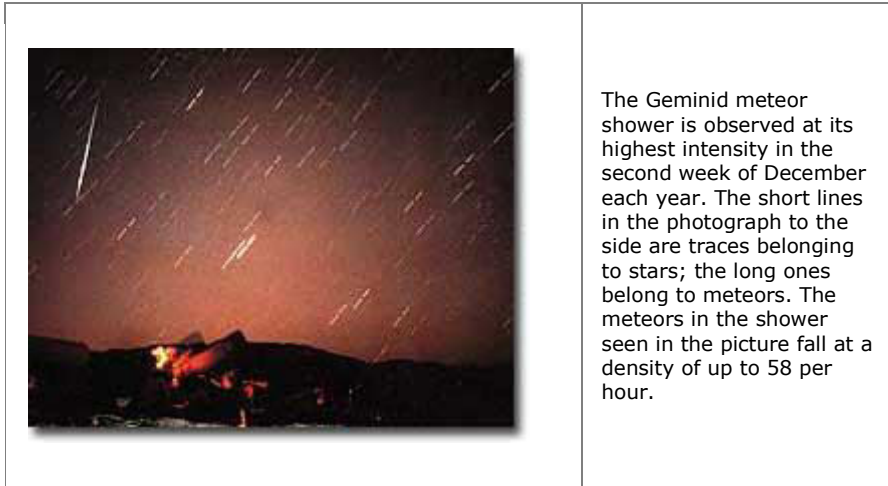
Most people looking at the sky do not think about the protective aspect of the atmosphere. They almost never think what kind of a place the world would be like if this structure did not exist. The above photo belongs to a giant crater caused by a meteor that fell in Arizona, in the USA. If the atmosphere did not exist, millions of meteoroids would fall to the Earth and the Earth would become an inhabitable place. Yet, the protective aspect of the atmosphere allows living things to survive in safety. This is certainly Allah's protection of people and a miracle proclaimed in the Qur'an.

In short, a perfect system is at work high above the Earth. It surrounds our world and protects it against external threats. Centuries ago, Allah informed us in the Qur'an of the world's atmosphere functioning as a protective shield.

21. www.godandscience.org/apologetics/designss.html. 

THE SKY MADE A DOME

It is He Who made the earth a couch for you, and the sky a dome. He sends down water from the sky and by it brings forth fruits for your provision. Do not, then, knowingly make others equal to Allah. (Qur'an, 2:22)



Here, the Arabic word for the sky is "*assamaa binaan*." As well as the meaning of "dome" or "ceiling," this also describes a kind of tent-like covering used by the Bedouin.²² What is being emphasised here, through mention of a tent-like structure, is a form of protection against external elements.

Even if we are generally unaware of it, a large number of meteors fall to the Earth, as they do the other planets. The reason why these make enormous craters on other planets but do no harm on Earth is that the atmosphere puts up considerable resistance to a falling meteor. The meteor is unable to withstand this for long and loses much of its mass from combustion due to friction. This danger, which might otherwise cause terrible disasters, is thus prevented thanks to the atmosphere. As well as the verses regarding the protective properties of the atmosphere cited above, attention is also drawn to the special creation in the following verse:

Do you not see that Allah has made everything on the earth subservient to you and the ships running upon the sea by His command? He holds back the heaven, preventing it from falling to the earth-except by His permission. Allah is All-Compassionate to mankind, Most Merciful. (Qur'an, 22:65)



The protective property of the atmosphere we discussed in the preceding section protects the Earth from space—in other words, from external elements. With the word "dome," referring to the sky in the above verse, attention is drawn to this aspect of the sky, which could not possibly have been known at the time of our Prophet (saas). The fact that this information was imparted 1,400 years ago in the Qur'an, when there were no spacecraft or giant telescopes, shows that the Qur'an is the revelation of our Lord, the Omniscient.

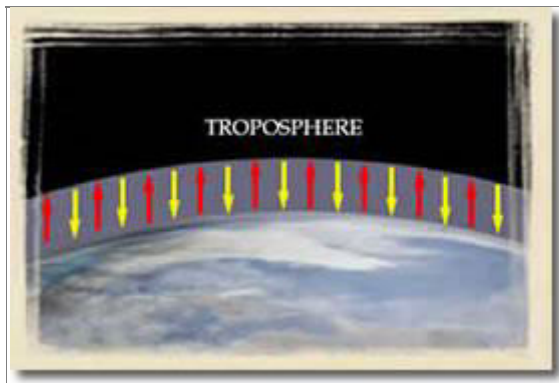
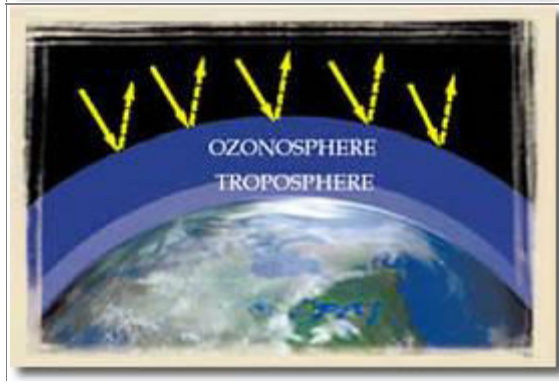
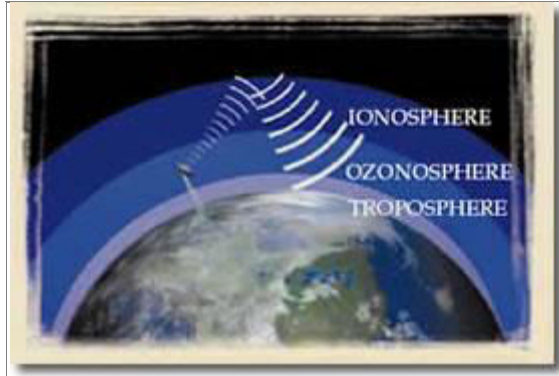
22. "The Quran and Modern Physics," <http://webhome.idirect.com/~alila/Writings/Physics.htm> 

THE RETURNING SKY

The verse 11 of Surat at-Tariq in the Qur'an, refers to the "returning" function of the sky.

[I swear] by Heaven which returns. (Qur'an, 86:11)

The word "*rajaai*" interpreted as "return" in Qur'an translations has meanings of "sending back" or "returning." As is known, the atmosphere surrounding the Earth consists of many layers. Each layer serves an important purpose for the benefit of life on Earth. Research has revealed that these layers have the function of turning the materials or rays they are exposed to back into space or back down to the Earth. Now let us examine, employing a few fitting examples, this "returning" function of the layers encircling the Earth.

	The presence of water is essential for life on Earth. One of the factors acting in the formation of water is the Troposphere, one of the layers of the atmosphere. The troposphere layer enables water vapour rising from the surface of the Earth to be condensed from whence it returns to the Earth in the form of rain.
	The atmosphere layer that blocks the rays that might be fatal to life on Earth is the Ozonosphere. The Ozonosphere turns harmful cosmic rays like ultraviolet back to space, hence preventing them from reaching the Earth and harming life.
	Each layer of the atmosphere has beneficial attributes for human beings. For example, the Ionosphere layer, one of the upper layers of the atmosphere, reflects radio waves broadcast from a certain centre back down to the Earth, thus enabling broadcasts to be received from long distances.

The troposphere, 13 to 15 kilometres above the Earth, enables water vapour rising from the surface of the Earth to be condensed and turned back as rain. The ozone layer, the lower layer of stratosphere at an altitude of 25 kilometres, reflects harmful radiation and ultraviolet light coming from space and turns both back into space.

The ionosphere reflects radio waves broadcast from the Earth back down to different parts of the world just like a passive communications satellite. Thus, it makes wireless communication, radio, and television broadcasting possible over long distances. The magnetosphere layer turns the harmful radioactive particles emitted by the Sun and other stars back into space before they reach the Earth.

The fact that this property of the atmosphere's layers, that was only demonstrated in the recent past was announced centuries ago in the Qur'an, once again proves that the Qur'an is Allah's Word.

THE LAYERS OF THE EARTH

One item of information about the Earth given in the Qur'an is its similarity to the seven-layered sky:

It is Allah Who created the seven heavens and of the earth the same number, the Command descending down through all of them, so that you might know that Allah has power over all things and that Allah encompasses all things in His knowledge. (Qur'an, 65:12)

The information in the above verse is confirmed in scientific sources, wherein it is explained that the Earth consists of seven strata. These, as scientists have identified, are:

1st layer: Lithosphere (water)

2nd layer: Lithosphere (land)

3rd layer: Asthenosphere

4th layer: Upper Mantle

5th layer: Inner Mantle

6th layer: Outer Core

7th layer: Inner Core



The word lithosphere is derived from the Greek word ***lithos***, meaning stone, which is a hard stratum forming the Earth's top layer. It is quite thin in comparison to the other strata. The lithosphere under the oceans is still thinner, and is a region with volcanic activity. Its average thickness is 80 km. It is colder and harder than the other strata, and therefore, forms the earth's shell.

Below the lithosphere is the stratum known as the asthenosphere, from the Greek word for "weak," ***asthenes***. This layer is thinner than the lithosphere and shifts. It was formed of hot, semi-solid substances capable of melting when exposed to high temperatures and pressure over geological time. It is thought that the hard lithosphere floats or moves over the slowly moving asthenosphere.²³ Under these layers is a high-temperature layer some 2,900 km thick, made up of semi-solid rock known as the mantle. This contains more iron, magnesium and calcium than the crust, and is also hotter and denser, because temperature and density in the Earth increase with depth.

At the centre of the Earth is the core, approximately twice as dense as the mantle. The reason for that density is that it contains a higher proportion of metals (iron-nickel alloy) than rock. The Earth's core consists of two parts. One is the 2,200 km thick liquid outer core, the other a 1,250 km thick solid inner core. The liquid outer core provides the Earth's magnetic field as the planet rotates.

The truth of this similarity between the sky and the layers of the Earth, only identified by 20th century technology, is without doubt another of the Qur'an's scientific miracles.

23. "Inside the Earth," <http://pubs.usgs.gov/publications/text/inside.html>. 

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THE FUNCTION OF MOUNTAINS

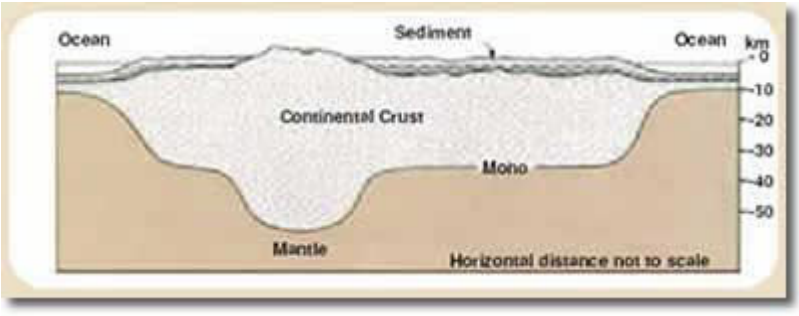
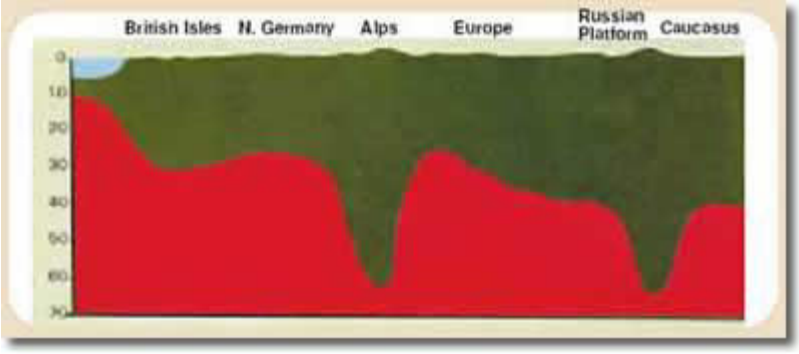
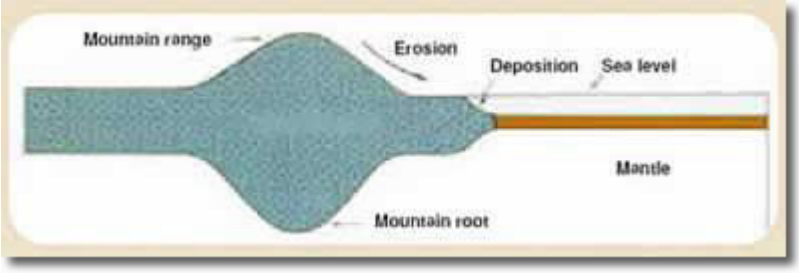
The Qur'an draws attention to a very important geological function of mountains:

We placed firmly embedded mountains on the earth, so it would not move under them... (Qur'an, 21:31)

The verse states that mountains perform the function of preventing shocks in the Earth. This fact was not known by anyone at the time the Qur'an was revealed. It was, in fact, brought to light only recently, as a result of the findings of modern geological research.

Formerly, it was thought that mountains were merely protrusions rising above the surface of the Earth. However, scientists realised that this was not actually the case, and that those parts known as the mountain root extended down as far as 10-15 times their own height. With these features, mountains

play a similar role to a nail or peg firmly holding down a tent. For example, Mount Everest, the summit of which stands approximately 9 km above the surface of the Earth, has a root deeper than 125 km.²⁴

	Mountains have roots deep under the surface of the ground. (Press and Siever, Earth, 413.)
	Schematic section. Mountains, like pegs, have deep roots embedded in the ground. (Andre Cailleux and J. Moody Stuart, Anatomy of the Earth (McGraw-Hill Companies: 1968), 220.)
	Another illustration shows how mountains are peg-like in shape, due to their deep roots.(Edward J. Tarbuck and Frederick K. Lutgens, Earth Science (USA: Macmillan USA: 1993), 158.)

Mountains emerge as a result of the movements and collisions of massive plates forming the Earth's crust. When two plates collide, the stronger one slides under the other, the one on the top bends and forms heights and mountains. The layer beneath proceeds under the ground and makes a deep extension downward. Consequently, as stated earlier, mountains have a portion stretching downwards, as large as their visible parts on the Earth.

In a scientific text, the structure of mountains is described as follows:

Where continents are thicker, as in mountain ranges, the crust sinks deeper into the mantle.²⁵

Professor Siaveda, a world-renowned underwater geologist, made the following comment in reference to the way that mountains have root-like stalks attaching them to the surface:

The fundamental difference between continental mountains and the oceanic mountains lies in its material... But the common denominator on both mountains are that they have roots to support the mountains. In the case of continental mountains, light-low density material from the mountain is extended down into the earth as a root. In the case of oceanic mountains, there is also light material supporting the mountain as a root... Therefore, the function of the roots are to support the mountains according to the law of Archimedes.²⁶

Furthermore, a book titled *Earth*, by Dr. Frank Press, former president of the U.S. National Academy of Sciences, which is still used as a text book in a great many universities, states that mountains are like stakes, and are buried deep under the surface of the Earth.²⁷

In other verses, this role of the mountains is pointed out by a comparison with "pegs":

Have We not made the earth as a bed and the mountains its pegs? (Qur'an, 78:6-7)

In another verse it is revealed that Allah "**made the mountains firm.**" (Qur'an, 79:32) The word "arsaha" in this verse means "was made rooted, was fixed, was nailed to the earth." Similarly, mountains extend to the surface layer joining lines on and below the surface, and nail these together. By fixing the Earth's crust they prevent any sliding over the magma layer or amongst the layers themselves. In short, mountains can be compared to nails holding strips of wood together. The fixing effect of mountains is known as isostasy in scientific literature. Isostasy is the state of equilibrium between the upward force created by the mantle layer and the downward force created by the Earth's crust. As mountains lose mass due to erosion, soil loss or melting of glaciers, they can gain mass from the formation of glaciers, volcanic explosions or soil formation. Therefore, as mountains grow lighter they are pressed upwards by the raising force implemented by the liquids. Alternatively, as they grow heavier they are pressed into the mantle by the force of gravity. Equilibrium between these two forces is established by isostasy. This balancing property of mountains is described in these terms in a scientific source:

G.B Airy in 1855 suggested that the crust of the earth could be likened to rafts of timber floating on water. Thick pieces of timber float higher above the water surface than thin pieces and similarly thick sections of the earth's crust will float on a liquid or plastic substratum of greater density. Airy was suggesting that mountains have a deep root of lower density rock which the plains lack. Four years after Airy published his work, J.H Pratt offered an alternative hypothesis... By this hypothesis rock columns below mountains must have a lower density, because of their greater length, than shorter rock columns beneath plains. Both Airy and Pratt's hypothesis imply that surface irregularities are balanced by differences in density of rocks below the major features (mountains and plains) of the crust. This state of BALANCE is described as the concept of ISOSTASY.²⁸

Today, we know that the rocky external layer of the Earth's surface is riven by deep faults and split into plates swimming above the molten lava. Since the Earth revolves very quickly around its own axis, were it not for the fixing effect of the mountains, these plaques would shift. In such an event, soil would not collect on the Earth's surface, water would not accumulate in the soil, no plants could grow, and no roads or houses could be built. In short, life on Earth would be impossible. Through the mercy of Allah, however, mountains act like nails, and to a large extent, prevent movement in the Earth's surface.

We subjected the mountains to glorify [Allah] with him in the evening and at sunrise.

(Qur'an, 38:18)

He cast firmly embedded mountains on the earth so it would not move under you, and rivers and pathways so that hopefully you would be guided.

(Qur'an, 16:15)

This vital role of mountains, which has been discovered by modern geological and seismic research, was revealed in the Qur'an centuries ago as an example of the supreme wisdom in Allah's creation.

... [He] cast firmly embedded mountains on the earth so that it would not move under you... (Qur'an, 31:10)

24. www.wamy.co.uk/announcements3.html, from an address by Prof. Zighloul Raghieb El-Naggar. 

25. Carolyn Sheets, Robert Gardner, and Samuel F. Howe, General Science (Newton, MA: Allyn and Bacon Inc.: 1985), 305. 

26. www.beconvinced.com/science/QURANMOUNTAIN.htm. 

27. Frank Press, and Raymond Siever, Earth, 3rd ed. (San Francisco: W. H. Freeman & Company: 1982). 

28. M. J. Selby, Earth's Changing Surface (Oxford: Clarendon Press: 1985), 32. 

THE MOVEMENT OF MOUNTAINS

In one verse, we are informed that mountains are not motionless as they seem, but are in constant motion.

You see the mountains you reckoned to be solid going past like clouds. (Qur'an, 27:88)

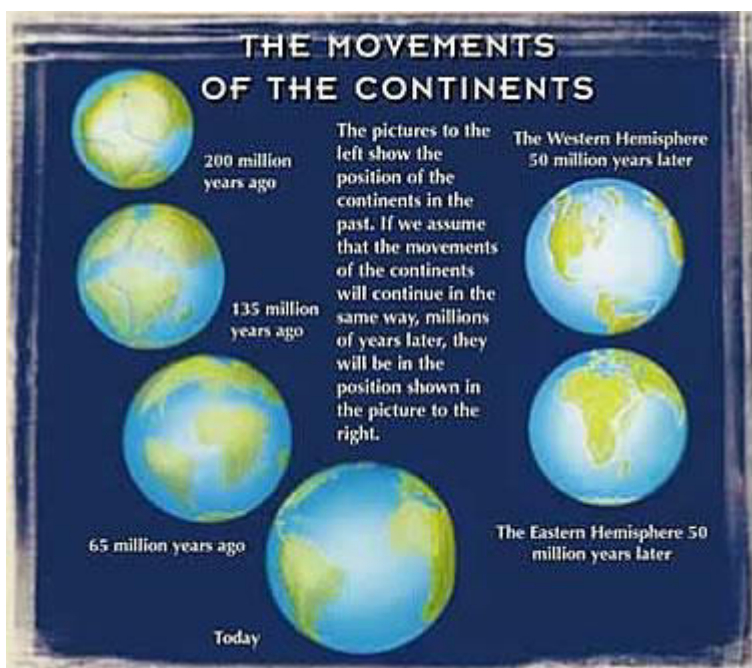


This motion of mountains is caused by the movement of the Earth's crust that they are located on. The Earth's crust "floats" over the mantle layer, which is denser. It was at the beginning of the 20th century when, for the first time in history, a German scientist by the name of Alfred Wegener proposed that the continents of the Earth had been attached together when it first formed, but then drifted in different directions, and thus separated as they moved away from each other.

Geologists understood that Wegener was right only in the 1980s, 50 years after his death. As Wegener pointed out in an article published in 1915, the land masses on the Earth were joined together about 500 million years ago, and this large mass, called Pangaea, was located in the South Pole.

Approximately 180 million years ago, Pangaea divided into two parts, which drifted in different directions. One of these giant continents was Gondwana, which included Africa, Australia, Antarctica and India. The second one was Laurasia, which included Europe, North America and Asia, except for India. Over the next 150 million years following this separation, Gondwana and Laurasia divided into smaller parts.

These continents, that emerged after the split of Pangaea, have been constantly moving on the Earth's surface at a rate of several centimetres per year, and in the meantime changing the sea to land ratios of the Earth.



Discovered as a result of the geological research carried out at the beginning of the 20th century, this movement of the Earth's crust is explained by scientists as follows:

The crust and the uppermost part of the mantle, with a thickness of about 100 kms., are divided into segments called plates. There are six major plates, and several small ones. According to the theory called plate tectonics, these plates move about on Earth, carrying continents and ocean floor with them. Continental motion has been measured at from 1-5 cm per year. As the plates continue to move about, this will produce a slow change in Earth's geography. Each year, for instance, the Atlantic Ocean becomes slightly wider.²⁹

There is an important point that needs to be stated here: Allah referred to the motion of mountains as drifting in a verse of the Qur'an. Today, modern scientists also use the term "continental drift" for this motion.³⁰

Continental drift is something that could not have been observed at the time of the revelation of the Qur'an, though Allah clearly indicated how it was to be understood: **"You see the mountains you reckoned to be solid"** in the verse. Though, He further described this action in the following verse, stating that the mountains were going past like clouds. As has been indicated, attention is clearly drawn to the movement of the layer in which the mountains are fixed.

It is without doubt a great miracle that this scientific fact, only recently discovered by science, should have been revealed in the 7th century, when conceptions of the nature of the universe were based on superstition and myth. This is another very important proof that the Qur'an is the word of Allah.

29. Sheets, Gardner, and Howe, General Science, 305 [↑](#)

30. Powers of Nature (Washington D.C.: National Geographic Society: 1978), 12-13. [↑](#)

DIFFERENT POINTS IN THE RISING AND SETTING OF THE SUN

No! I swear by the Lord of the Easts and Wests that We have the power. (Qur'an, 70:40)

Lord of the heavens and the earth and everything between them; Lord of the Easts. (Qur'an, 37:5)

The Lord of the two Easts and the Lord of the two Wests. (Qur'an, 55:17)

As can be discerned, the words east and west are used in the plural sense in the above verses. For instance, the word "**mashariq**," used in the first verse for "east," and the word "**magharib**" used for "west," are in plural form, indicating that there are two of each. The words "**mashriqayn**" and "**maghribayn**" in the last verse are used for two easts and two wests. "**Mashariq**" and "**magharib**" also mean the place where the Sun rises and sets. The above verses are therefore referring to different sites of the dawning and closing of the day. It is also worthy of note that the vow is taken by the Lord of "the easts and wests" in the first verse.

The axis around which the earth revolves itself is at an angle of 23° 27'. Due to that angle, and the spherical shape of the Earth, the light rays from the Sun do not always strike it at the same angle. This means that since the Sun's rays fall on that area at different angles, someone far away from the equator will observe the Sun rising at different points in the east and setting at different points in the west. The further away from the equator that person is the more different points he will identify for the dawning and closing of the day.



Someone at the equator, however, will always observe that the Sun rises exactly in the east and sets exactly in the west, since the Sun's rays always fall perpendicularly there. Bearing in mind that the Arabian peninsula is not that far from the equator, it would appear impossible for such an observation to be made there. That is because someone in that region would see that the Sun always rises at the same point, and always sets at the same point. The expression regarding east and west in the above verses may be indicating the Sun rising and setting at different points. (Allah knows best.)

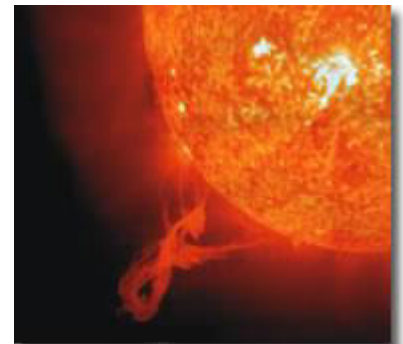
LAND LOSS AT THE EXTREMITIES

Do they not see how We come to the land eroding it at its extremities?... (Qur'an, 13:41)

... Do they not see how We come to the land eroding it from its extremities?... (Qur'an, 21:44)

The Earth is bombarded by proton, electron and alpha particles from the Sun. These solar winds are powerful enough to separate the atmosphere from the Earth. However, it will take about five times longer than the total life of the Sun at the Earth's present rate of matter loss (at most 3 kg per second.) for the atmosphere to be used up.³¹ That is because, thanks to the powerful magnetic field formed by the magnetosphere in the atmosphere, the Earth is to some extent protected from this powerful erosion. The loss of ions-oxygen, helium and hydrogen-dispersed over the Earth's ionosphere layer into the depths of space is of much smaller dimensions than the vast layer of air surrounding the Earth. Even so, the amount leaking into space is nevertheless of a significant size.³²

Thanks to NASA spacecraft, researchers have obtained concrete evidence that energy explosions on the Sun cause oxygen and other gases to disperse into space from the outer layer of the Earth's atmosphere. Scientists first observed that the Earth experiences a loss of matter from its outer layers on September 24-25, 1998.³³



A HUGE BALL OF FIRE

Immense twisting solar eruptions are filled with ionised helium gas at a temperature of 60,000 degrees Centigrade. (As observed by the SOHO satellite in extreme ultraviolet light.)

However, the above verses may also be referring to the loss of land on Earth in another regard.

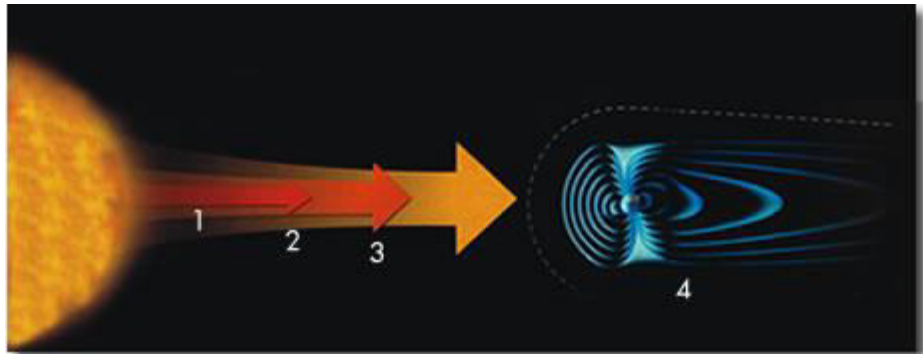
At the present time, the polar ice caps are melting and the water level in the oceans is rising. The increasing quantity of water is covering ever more land. As coastal areas come under water, the land surface or total amount of land is decreasing.³⁴ The expression "eroding it from its extremities" in the above verses may well be pointing to coastal areas being covered by water.

A New York Times report on this subject reads:

Over the last century, the average surface temperature of the globe has risen by about 1 degree Fahrenheit, and the rate of warming has accelerated in the last quarter-century. That is a significant amount... Previous studies of satellite and submarine observations have seemed to establish a warming trend in the northern polar region and raise the possibility of a melting icecap. Scientists at the Goddard Space Science Institute, a NASA research center in Manhattan, compared data from submarines in the 1950's and 1960's with 1990's observations, demonstrating that the ice cover over

the entire Arctic basin has thinned by 45 percent. Satellite images have revealed that the extent of ice coverage has significantly shrunk in recent years.³⁵

The findings made towards the end of the 20th century help us to understand the wisdom of Surat ar-Ra'd 41, and Surat al-Anbiya' 44.



2. 8 minutes : Ultraviolet and x-ray emissions travelling at the speed of light can block out radio broadcasts.

3. 30 minutes: Charged particles at a high energy level can threaten satellites and high-flying jets.

4. Between 48 minutes and 96 hours: The Earth's magnetic field is disrupted by mass solar particles. The effect of this is to endanger electricity networks.

5. THE MAGNETOSPHERE is a region in space occupied by the Earth's magnetic field. It usually extends for 64,000 kilometres (40,000 miles) towards the Sun, although powerful solar storms can compress the magnetosphere to a mere 42,000 kilometres (26,000 miles), leaving satellites outside exposed to solar winds.

This loss at the extremities, as revealed by Allah, may be understood in light of another scientific fact revealed in the Qur'an. The fact that the Earth, which revolves around its own axis, has a geoid shape, is a fact that has gained acceptance in recent centuries.

Research has revealed that the equatorial diameter of the Earth expands under the effect of the force stemming from this rotation, and that it is compressed at its extremities, in other words the poles. Furthermore, since the Earth is in constant rotation this change continues to occur. Indeed, the term "nanqusu" in Surat ar-Ra'd 41, translated as "eroding," shows that this process of erosion is an ongoing one.

It is the force of gravity that has given such celestial bodies as the Earth their spherical form. However, that shape is not exactly spherical; it flattens out somewhat at the poles and thickens at the equator. According to NASA figures, the radius of the Earth is 6,378.1 km (3,963.2 miles) at the equator but only 6,356.8 km (3,949.9 miles) from pole to pole.³⁶ This is a difference of some 0.3%.



Research has revealed that the Earth keeps bulging at the equator.

This model of the shape of the Earth was suggested by Sir Isaac Newton in 1687. This fact, revealed in the Qur'an 1,400 years ago, is another of its scientific miracles.

Caption: Research has revealed that the Earth keeps bulging at the equator.

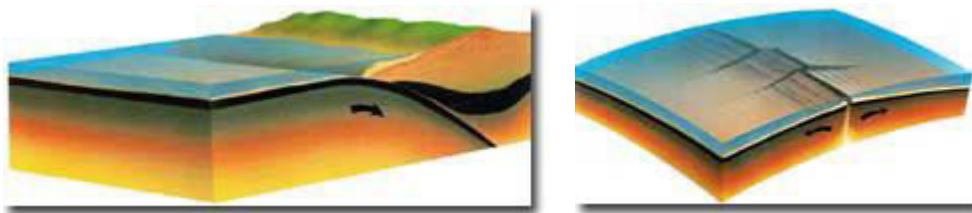
***Allah created the heavens and the earth with truth. There is certainly a Sign in that for the believers.
(Qur'an, 29:44)***

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31. "Press Release," Swedish Institute of Space Physics (IRF), 9 March 2001, www.irf.se/press/press_010309eng.html.[↑]
32. "Solar Wind Blows Some of Earth's Atmosphere into Space," NASA, http://science.nasa.gov/newhome/headlines/ast08dec98_1.htm.[↑]
33. Ibid.[↑]
34. Kazi, 130 Evident Miracles in the Qur'an, 115.[↑]
35. John Noble Wilford, "Ages-Old Icecap at North Pole Is Now Liquid, Scientists Find," New York Times, 19 August 2000, www.planetwaves.net/polar_NYT.html.[↑]
36. <http://nssdc.gsfc.nasa.gov/planetary/factsheet/earthfact.html>.[↑]

THE SPLITTING EARTH

[I swear] by Heaven which returns and the earth which splits. (Qur'an, 86:11-12)

The Arabic word "sadA" in the above verse means "cracking, splitting apart." Allah's swearing by the splitting of the Earth points to an important phenomenon, as do the other scientific miracles in the Qur'an. Scientists first descended to the depths of the seas and oceans in order to study mineral resources in 1945-1946. One of the most important facts to emerge from that research was the fissured structure of the Earth. The rock layer on the external surface of the Earth was split by large numbers of cracks (faults), tens of thousands of kilometres long, running from north to south and east to west. Scientists also realised that there was molten magma under the sea, at depths of 100-150 km.



The above representative pictures show the fragmented structure of the Earth. The magma layer under the Earth's crust is allowed to escape to the surface by this fragmented structure. This significantly reduces the temperature of the Earth.

Due to these splits and cracks, lava flows from volcanoes on the sea bed. Due to this fissured structure, a significant amount of heat is also given off, and a large part of molten rocks forms the mountains under the oceans. If the Earth did not possess this structure, which allows large amounts of heat to escape from its crust, life on Earth would become impossible.³⁷



If the Earth's surface did not permit high levels of heat to escape, life on Earth would be impossible.

There is no doubt that such information, which required such advanced technology to be discovered, being given 1,400 years ago is yet another proof that the Qur'an is the Word of Allah.

37. "Arctic Explorers," 23 June 2000, <http://tea.rice.edu/schauer/6.23.2000.html>; Tetsuzo Seno, Satoru Honda, "Mantle Convection and The Global Sea Level: When Did Plate Tectonics Begin on The Earth?," www.eri.u-tokyo.ac.jp/seno/sealevel_abst.html; "Mantle Convection," http://theory.uwinnipeg.ca/mod_tech/node195.html; Prof. Zaghloul El-Naggar, "Scientific Signs in the Qur'an: Examples from the Area of Earth Sciences," www.nekkah.com/Main/EngPage/Scientific_Signs_in_the_Quran.htm.³⁷

THE MIRACLE OF IRON

Iron is one of the elements highlighted in the Qur'an. In Surat al-Hadid, meaning Iron, we are informed:

And We also sent down iron in which there lies great force and which has many uses for mankind... (Qur'an, 57:25)



Iron ingot

The word "*anzalna*," translated as "sent down" and used for iron in the verse, could be thought of having a metaphorical meaning to explain that iron has been given to benefit people. But, when we take into consideration the literal meaning of the word, which is, "being physically sent down from the sky," as in the case of rain and Sun rays, we realize that this verse implies a very significant scientific miracle. Because, modern astronomical findings have disclosed that the iron found in our world has come from giant stars in outer space.³⁸

Not only the iron on earth, but also the iron in the entire Solar System, comes from outer space, since the temperature in the Sun is inadequate for the formation of iron. The sun has a surface temperature of 6,000 degrees Celsius, and a core temperature of approximately 20 million degrees. Iron can only be produced in much larger stars than the Sun, where the temperature reaches a few hundred million degrees. When the amount of iron exceeds a certain level in a star, the star can no longer accommodate it, and it eventually explodes in what is called a "nova" or a "supernova." These explosions make it possible for iron to be given off into space.³⁹

One scientific source provides the following information on this subject:

There is also evidence for older supernova events: Enhanced levels of iron-60 in deep-sea sediments have been interpreted as indications that a supernova explosion occurred within 90 light-years of the sun about 5 million years ago. Iron-60 is a radioactive isotope of iron, formed in supernova explosions, which decays with a half life of 1.5 million years. **An enhanced presence of this isotope in a geologic layer indicates the recent nucleosynthesis of elements nearby in space and their subsequent transport to the earth (perhaps as part of dust grains).**⁴⁰

All this shows that iron did not form on the Earth, but was carried from Supernovas, and was "sent down," as stated in the verse. It is clear that this fact could not have been known in the 7th century, when the Qur'an was revealed. Nevertheless, this fact is related in the Qur'an, the Word of Allah, Who encompasses all things in His infinite knowledge.

Astronomy has also revealed that other elements also formed outside the Earth. In the expression "**We also sent down iron**" in the verse, the word "also" may well be referring to that idea. However, the fact that the verse specifically mentions iron is quite astounding, considering that these discoveries were made at the end of the 20th century. In his book Nature's Destiny, the well-known microbiologist Michael Denton emphasizes the importance of iron:

Surat al-Hadid is the 57th in the Qur'an. The numerical value of the word "al-Hadid" in Arabic is 57. The numerical value of "hadid" on its own is 26. As can be seen from the periodic table to the side, 26 is the number of the iron atom. With the verse revealed in Surat al-Hadid Almighty Allah indicates how iron formed, and with the mathematical code contained in the verse He reveals to us a scientific miracle.

Of all the metals there is none more essential to life than iron. It is the accumulation of iron in the center of a star which triggers a supernova explosion and the subsequent scattering of the vital atoms of life throughout the cosmos. It was the drawing by gravity of iron atoms to the center of the primeval earth that generated the heat which caused the initial chemical differentiation of the earth, the outgassing of the early atmosphere, and ultimately the formation of the hydrosphere. It is molten iron in the center of the earth which, acting like a gigantic dynamo, generates the earth's magnetic field, which in turn creates the Van Allen radiation belts that shield the earth's surface from destructive high-energy-penetrating cosmic radiation and preserve the crucial ozone layer from cosmic ray destruction...

Without the iron atom, there would be no carbon-based life in the cosmos; no supernovae, no heating of the primitive earth, no atmosphere or hydrosphere. There would be no protective magnetic field, no Van Allen radiation belts, no ozone layer, no metal to make hemoglobin [in human blood], no metal to tame the reactivity of oxygen, and no oxidative metabolism.

The intriguing and intimate relationship between life and iron, between the red color of blood and the dying of some distant star, not only indicates the relevance of metals to biology but also the biocentricity of the cosmos...⁴¹

This account clearly indicates the importance of the iron atom. The fact that particular attention is drawn to iron in the Qur'an also emphasises the importance of the element. In addition, there is another hidden truth in the Qur'an which draws attention to the importance of iron: Surat al-Hadid 25, which refers to iron, contains two rather interesting mathematical codes.

"Al- Hadid" is the 57th sura in the Qur'an. The *abjad* of the word "Al-Hadid" in Arabic, when the numerological values of its letters are added up, is also 57. (For *abjad* calculations see the section on Numerological Calculations (*Abjad*) in the Qur'an.)

The numerological value of the word "*hadid*" alone is 26. And 26 is the atomic number of iron.

Moreover, iron oxide particles were used in a cancer treatment in recent months and positive developments were observed. A team led by Dr. Andreas Jordan, at the world famous Charité Hospital in Germany, succeeded in destroying cancer cells with this new technique developed for the treatment of cancer-magnetic fluid hyperthermia (high temperature magnetic liquid). As a result of this technique, first performed on the 26-year-old Nikolaus H., no new cancer cells were observed in the patient in the following three months.

This method of treatment can be summarised as follows:

- 1.** A liquid containing iron oxide particles is injected into the tumour by means of a special syringe. These particles spread throughout the tumour cells. This liquid consists of thousands of millions of particles, 1,000 times smaller than the red blood corpuscles, of iron oxide in 1 cm³ that can easily flow through all blood vessels.⁴²
- 2.** The patient is then placed in a machine with a powerful magnetic field.
- 3.** This magnetic field, applied externally, begins to set the iron particles in the tumour in motion. During this time the temperature in the tumour containing the iron oxide particles rises by up to 45 degrees.

In a few minutes the cancer cells, unable to protect themselves from the heat, are either weakened or destroyed. The tumour may then be completely eradicated with subsequent chemotherapy.⁴³

In this treatment it is only the cancer cells that are affected by the magnetic field, since only they contain the iron oxide particles. The spread of this technique is a major development in the treatment of this potentially lethal disease. In the treatment of such a widespread disease as cancer, the use of the expression "**iron in which there lies great force and which has many uses for mankind**" (Qur'an, 57:25) in the Qur'an is particularly noteworthy. Indeed, in that verse, the Qur'an may be indicating the benefits of iron for human health. (Allah knows best.)

38. Kazi, 130 Evident Miracles in the Qur'an, 110-111; and www.wamy.co.uk/announcements3.html, from Prof. Zighloul Raghib El-Naggar's speech [↑](#)

39. Ibid. [↑](#)

40. Priscilla Frisch, "The Galactic Environment of the Sun," American Scientist, January-February 2000, www.americanscientist.org/template/AssetDetail/assetid/21173?fulltext=true. [↑](#)

41. Michael J. Denton, Nature's Destiny (The Free Press: 1998), 198. [↑](#)

42. www.inm-gmbh.de/cgi-bin/frame/frameloader.pl?sprache=en&url=http://www.inm-gmbh.de/htdocs/technologien/highlights/highlights_en.htm. [↑](#)

43. "Nanotechnology successfully helps cancer therapies," IIC Fast Track, Nanotech News from Eastern Germany, Industrial Investment Council, October 2003; www.iic.de/uploads/media/NANO_FT_Nov2003_01.pdf [↑](#)

THE FORMATION OF PETROL

Glorify the Name of your Lord, the Most High: He Who created and moulded; He Who determined and guided; He Who brings forth green pasture, then makes it blackened stubble. (Qur'an, 87:1-5)

As we know, petrol forms from the remains of plants and animals in the sea. Once these have decayed on the sea bed after millions of years, all that is left are oily substances. These, under layers of mud and rock, then turn into petrol and gas. Movements in the Earth's crust sometimes lead to the sea petrifying and to the rocks containing petrol being buried thousands of metres deep. The petrol that forms sometimes leaks through the pores in the rock layers from several kilometres down, and rises to the surface, where it vaporises (turns into gas), leaving a mass of bitumen behind.

The three elements identified in the first four verses of Surat al-A'la parallel the formation of petroleum. It is quite likely that the term "**almaraa**," meaning pasture or meadow, refers to the organically-based substances in the formation of petroleum. The second word of note in the verse is "**ahwa**," used to describe blackish-green, greenish-black, dark or sooty colours. This word can be thought of as describing the waste plant matter accumulated underground gradually turning black, since these words are supported by a third word, "**ghuthaan**." The word "**ghuthaan**" translated as stubble, can also mean flood-water plants, plants brought together by waste matter being collected and dispersed around valleys, rubbish, leaves or foam. In addition to the connotation of "vomiting out" implied in the word, it may also be translated as "to flood forth vomited matter," and describes the way that the earth "vomits" forth petroleum. In fact, in the light of the formation of petroleum, the way it emerges, its foam-like appearance and its colour, one can better see with what wisdom were employed the words in the verses.

As has been discussed, the plant in the verse turning into a dark and viscous liquid bears a strong resemblance to the formation of petroleum. The description of such a formation over many years, at a time when the formation of petroleum was unknown, is without doubt another proof that the Qur'an is the revelation of Allah.

THE RELATIVITY OF TIME

Today, the relativity of time is a proven scientific fact. This was revealed by Einstein's theory of relativity during the early part of the 20th century. Until then, it was not known that time was relative, nor that it could change according to the circumstances. Yet, the renowned scientist Albert Einstein proved this fact by discovering the theory of relativity. He showed that time is dependent on mass and velocity.

However, the Qur'an had already included information about time's being relative! Some verses about the subject read:

... A day with your Lord is equivalent to a thousand years in the way you count. (Qur'an, 22:47)

He directs the whole affair from heaven to earth. Then it will again ascend to Him on a Day whose length is a thousand years by the way you measure. (Qur'an, 32:5)



The angels and the Spirit ascend to Him in a day whose length is fifty thousand years. (Qur'an, 70:4)

The fact that the relativity of time is so definitely mentioned in the Qur'an, which began to be revealed in 610, is more evidence that it is a divine book.

CREATION IN SIX DAYS

Your Lord is Allah, Who created the heavens and the earth in six days and then settled Himself firmly on the Throne... (Qur'an, 7:54)

One example of the harmony between the Qur'an and modern science is the subject of the age of the universe. Cosmologists estimate the age of the universe as 16^{17} billion years. The Qur'an states that the entire universe was created in six days. These two time frames, which may seem contradictory, are actually surprisingly compatible. In fact, both these figures concerning the age of the universe are correct. In other words, the universe was created in six days, as revealed in the Qur'an, and this period corresponds to 16-17 billion years in the way that we experience time.

In 1915 Einstein proposed that time was relative, that the passage of time altered according to space, the speed of the person travelling and the force of gravity at that moment. Bearing in mind these differences in the passage of time, the period of time in which the universe was created as revealed in seven different verses of the Qur'an is actually highly compatible with scientists' estimations. The six-day period revealed in the Qur'an can be thought of as six periods. Because, taking into account the relativity of time, a "day" refers only to a 24-hour period experienced on Earth under current conditions. Elsewhere in the universe, however, at another time and under other conditions, a "day" could refer to a much longer period of time. Indeed, the word "ayyamin" in the period of six days (*sittati ayyamin*) in these verses (Qur'an 32:4, 10:3, 11:7, 25:59, 57:4, 50:38, and 7:54) means not only "days," but also "age, period, moment, term."

In the first period of the universe, the passage of time took place much faster than that with which we are familiar today. The reason for this is that, at the moment of the Big Bang, our universe was compressed into a very small point. The expansion of the universe and increase in its volume ever since the moment of that explosion has extended the borders of the universe to millions of light years. Indeed, the stretching of space ever since that moment has had very important ramifications for universal time.

The energy at the moment of the Big Bang slowed down the flow of time 10^{12} (one million million) times. When the universe was created the speed of universal time was higher up to a million million times, as time is experienced today. In other words, **a million million minutes on Earth is the equivalent of just one minute in universal time.**

When a six-day period of time is calculated according to the relativity of time, it equates to six million million (six trillion) days. That is because universal time flows a million million times faster than time on Earth. Calculated in terms of years, 6 trillion days equates to approximately 16.427 billion years. This is within the estimated range for the age of the universe.

$6,000,000,000,000 \text{ days} / 365.25 = 16.427104723 \text{ billion years}$

Allah, there is no god but Him, the Living, the Self-Sustaining. He is not subject to drowsiness or sleep. Everything in the heavens and the earth belongs to Him. Who can intercede with Him except by His permission? He knows what is before them and what is behind them but they cannot grasp any of His knowledge save what He wills. His Footstool encompasses the heavens and the earth and their preservation does not tire Him.

*He is the Most High, the Magnificent.
(Qur'an, 2:255)*

On the other hand, each of the six days of creation equates to very different periods, as we perceive time. The reason for this is that the speed of the passage of time declines in proportion to the expansion of the universe. Ever since the Big Bang, as the size of the universe doubled, so the passage of time halved. As the universe grew, the speed at which the universe doubled increasingly slowed down. This rate of expansion is a scientific fact acknowledged the world over and described in the text book *The Fundamentals of Physical Cosmology*. When we calculate every day of creation in terms of Earth time, the following situation emerges:

- Looked at from the moment when time began, the first day of creation (first phase) lasted 24 hours. This period, however, is the equivalent of 8 billion years in Earth terms.
- The second day of creation (second phase) lasted 24 hours. This, however, lasted half as long, in our terms, as the preceding day, in other words 4 billion years.
- The third day (third phase) lasted half as long as the second day, in other words 2 billion years.
- The fourth day (fourth phase) lasted 1 billion years.
- The fifth day (fifth phase) lasted 500 million years.
- And the sixth day (sixth phase) lasted 250 million years.
- Conclusion: **When the six days of creation, in other words the six phases, are added together in Earth terms, the resulting figure is 15 billion 750 million years. This figure displays an enormous parallel with modern-day estimations.**

This conclusion is one of the facts revealed by 21st century science. Science has once again confirmed a fact revealed in the Qur'an 1,400 years ago. This harmony between the Qur'an and science is one of the miraculous proofs that the Qur'an is the revelation of Allah, the Creator, the Omniscient.

THE TRUTH OF DESTINY

But you will not will unless Allah wills. Allah is All-Knowing, All-Wise. (Qur'an, 76:30)

As a result of experiments he performed in 1973, Professor Benjamin Libet, a neurophysiologist at the University of California, revealed that all our decisions and choices are set out beforehand, and that consciousness only comes into play half a second after everything has been determined.⁴⁴ This is interpreted by other neurophysiologists as meaning that we actually live in the past and that our consciousness is like a monitor which shows us everything half a second later.

Therefore, none of the experiences we perceive are in real time, but are delayed by up to half a second from the real events themselves. Libet carried out his research by making use of the fact that brain surgery can be performed without the use of narcosis, in other words while the subject is fully conscious. Libet stimulated the brains of his subjects with small electrical currents, and when they experienced a perception that their hands had been touched the subjects said that they had felt that "touch" almost half a second before. As a result of his measurements, Libet arrived at the following conclusion: All perceptions are normally transmitted to the brain. As these are subconsciously evaluated and interpreted, the ego is unaware of anything. The information that appears before our minds, in other words that we can be aware of, is transmitted to the cortex, the seat of consciousness, after a certain delay.⁴⁵



The conclusion from this may be summarised as follows: **The decision to move a muscle takes place before that decision reaches the consciousness.** There is always a delay between a neurological or perceptual process and our becoming aware of the thought, feeling, perception or movement it represents. To put it another way, we can only be aware of a decision after that decision has been taken.

In Professor Libet's experiments, this delay varies between 350 and 500 milliseconds, although the conclusion that emerges is in no way dependent upon those figures. Because, according to Libet, whatever the length of that delay-it makes no difference whether it is great or small, whether it lasts an hour or a microsecond-our material life is always in the past. This demonstrates that every thought, emotion, perception or movement happens before reaching our consciousness, and that proves that the future is entirely outside our control.⁴⁶

In other experiments, Professor Libet left the choice of when the subjects would move their fingers up to them. The brains of the subjects were monitored at the moment their fingers moved, and it was observed that the relevant brain cells went into action before the subjects actually took the decision. To put it another way, the command "do!" reaches the individual, and the brain is readied to perform the action; the individual only becomes aware of this half a second later. He or she does not take a decision to act and then performs that action, but rather performs an action predetermined for him or her. Yet, the brain makes an adjustment, removing any recognition that the individual is actually living in the past. For that reason, at the moment we refer to as "now," we are actually living something determined in the past. As already discussed, these studies manifest the fact that everything happens by the will of Allah, as revealed in Surat al-Insan 30.

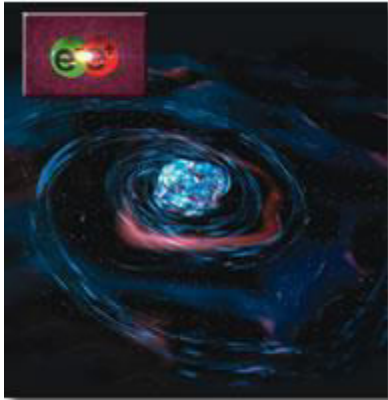
44. Benjamin Libet, "Unconscious cerebral initiative and the role of conscious will in voluntary action," Behavioral and Brain Sciences, 1985, 529-566. [↑](#)

45. www.genetikbilimi.com/genbilim/bilincbeyninkuklasi.htm. [↑](#)

46. http://faculty.virginia.edu/consciousness/new_page_8.htm#5.10.%20Free%20will%20as%20the%20possibility%20of%20alternative%20action. [↑](#)

DUALITY IN CREATION

Glory be to Him Who created all the pairs: from what the earth produces and from themselves and from things unknown to them. (Qur'an, 36:36)



There are antimatter equivalents of all the basic particles in the universe. Antimatters possess the same mass but carry opposite charges. For that reason, when matter and antimatter make contact they disappear by turning into energy.

While "male and female" is equivalent to the concept of "pair," "things unknown to them," as expressed in the Qur'an, bears a broader meaning. Indeed, we encounter one of the meanings pointed to in the verse in the present day. The British physicist Paul Dirac, who discovered that matter was created in pairs, won the Nobel Prize for Physics in 1933. This finding, known as "parity," revealed the duality known as matter and anti-matter. Anti-matter bears the opposite characteristics to matter. For instance, contrary to matter, anti-matter electrons are positive and protons negative. This fact is expressed in a scientific source as follows:

... every particle has its antiparticle of opposite charge... [T]he uncertainty relation tells us that pair creation and pair annihilation happen in the vacuum at all times, in all places.⁴⁷

Another example of duality in creation is plants. Botanists only discovered that there is a gender distinction in plants some 100 years ago.⁴⁸ Yet, the fact that plants are created in pairs was revealed in the following verses of the Qur'an 1,400 years ago:

It is Allah Who created the heavens with no support-you can see them-and cast firmly embedded mountains on the earth so that it would not move under you, and scattered about in it creatures of every kind. And We send down water from the sky and make every generous plant grow in it, in pairs. (Qur'an, 31:10)

It is He Who made the earth a cradle for you and threaded pathways for you through it and sent down water from the sky by which We have brought forth diverse pairs of plants. (Qur'an, 20:53)

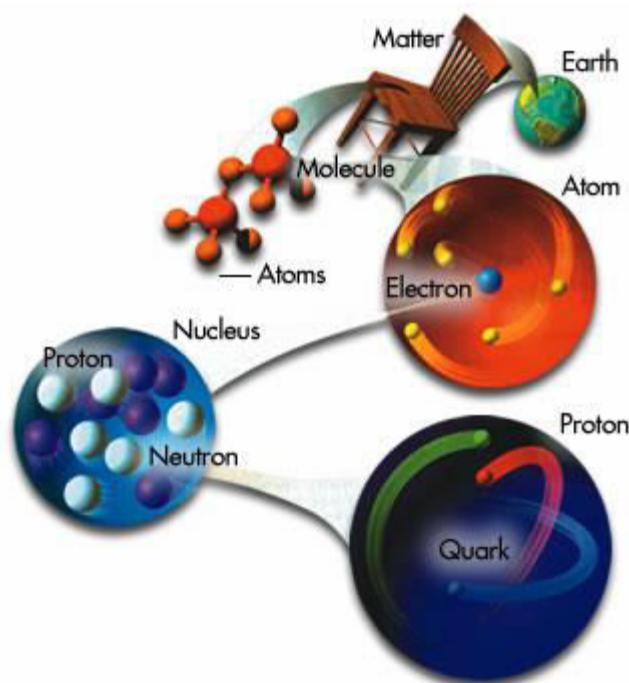
SUB-ATOMIC PARTICLES

Following the development of the atomic theory of the Greek philosopher Democritus, people used to believe that matter consisted of minute, indivisible and indestructible particles known as atoms. However, advances in the study of atoms have refuted this notion. At the present time, modern science has revealed that the atom, previously regarded as the smallest particle, can actually be split. This fact only emerged in the last century, but was revealed in the Qur'an 1,400 years ago:

... He is the Knower of the Unseen, Whom not an atom's weight eludes, either in the heavens or in the earth; nor is there anything smaller or larger than that which is not in a Clear Book. (Qur'an, 34:3)

... Not even an atom's weight eludes your Lord, either on earth or in heaven. Nor is there anything smaller than that, or larger, which is not in a Clear Book. (Qur'an, 10:61)

This verse refers to "atom" and smaller particles still.



1. Ordinary matter consists of atoms bound together by electromagnetic force to form molecules. These molecules come together to form solids, liquids and gasses.
2. Atoms consist of a dense nucleus surrounded by a cloud of electrons. Electromagnetic force holds the nucleus and electrons together.
3. The nucleus consists of protons and neutrons held together by a powerful nuclear force.
4. Protons and neutrons consist of three quarks each and are held together by powerful nuclear force.

Up until 20 years ago, it was believed that the smallest particles were the protons and neutrons which comprise the atom. Very recently, however, even smaller particles of which these themselves consist were discovered. A specialised branch of physics, called "particle physics," emerged to study these "sub-particles" and their particular behaviour. Particle physics research has revealed that the protons and neutrons which comprise the atoms actually consist of sub-particles known as quarks. The size of these quarks, the basic components of protons, whose small size is beyond human conception, is astonishing: 10^{-18} (0.000000000000000001 of a metre).⁴⁹

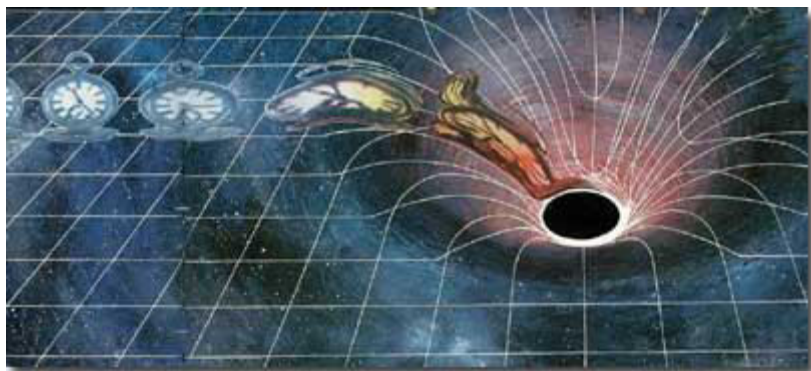
Another point worthy of note is that these verses draw particular attention to the weight of the atom. The word "mithqal," in the expression "*mithqali tharratin*" (an atom's weight) in the above verses, means weight. In fact, it has been discovered that the protons, neutrons and electrons which form the atom are also compounds which give the atom its weight. Therefore, it is yet another scientific miracle of the Qur'an that attention is drawn instead to the weight of the atom and not its size or any other feature.

49. L.M. Ledermann, and D.N. Schramm, "Demonstration: Die Bausteine der Materie," 1989, <http://i115srv.vu-wien.ac.at/physik/ws95/w9560dir/w9561d10.htm>. 

BLACK HOLES

The 20th century saw a great many new discoveries regarding celestial phenomena in the universe. One of these entities, which has only recently been encountered, is the Black Hole. These are formed when a star which has consumed all its fuel collapses in on itself, eventually turning into a black hole with infinite density and zero volume and an immensely powerful magnetic field. We are unable to see black holes even with the most powerful telescope, because their gravitational pull is so strong that light is unable to escape from them. However, such a collapsed star can be perceived by means of the effect it has on the surrounding area. In Surat al-Waqi'a, Allah draws attention this matter in this way, by swearing upon the position of stars:

And I swear by the stars' positions-and that is a mighty oath if you only knew. (Qur'an, 56:75-76)



The term "black hole" was first employed in 1969 by the American physicist John Wheeler. Previously, we imagined that we were able to see all the stars. However, it later emerged that there were stars in space whose light we were unable to perceive. Because, the light of these collapsed stars disappears. Light cannot escape from a black hole because it is such a high concentration of mass in a small space. The enormous gravitation captures even the fastest particles, i.e. the photons. For example, the final stage of a typical star, three times the mass of the Sun, ends after its burning out and its implosion as a black hole of only 20 kilometres in diameter! Black holes are "black," i.e. veiled from direct observation. They nevertheless reveal themselves indirectly, by the tremendous suction which their gravitational force exerts on other heavenly bodies. As well as depictions of the Day of Judgement, the verse below may also be pointing to this scientific discovery about black holes:

When the stars are extinguished, (Qur'an, 77:8)

Moreover, stars of great mass also cause warps to be perceived in space. Black holes, however, do not just cause warps in space but also tear holes in it. That is why these collapsed stars are known as black holes. This fact may be referred to in the verse about stars, and this is another important item of information demonstrating that the Qur'an is the Word of Allah:

[I swear] by Heaven and the Tariq! And what will convey to you what the Tariq is? The Star Piercing [the darkness]! (Qur'an, 86:1-3)

PULSARS: PULSATING STARS

[I swear] by Heaven and the Tariq! And what will convey to you what the Tariq is? The Star Piercing [the darkness]! (Qur'an, 86:1-3)

The word "*Tariq*," name of the Sura 86, comes from the root "*tarq*," whose basic meaning is that of striking hard enough to produce a sound, or hitting. Bearing in mind the word's possible meaning as "beating," "striking hard," our attention may be being drawn in this sura to an important scientific fact. Before analysing this information, let us look at the other words employed in the verse to describe these stars. The term "*al-tariq*" in the above verse means a star that pierces the night, that pierces the darkness, born at night, piercing and moving on, beating, striking, or sharp star. Furthermore, the term "*waal*" draws attention to the things being sworn on-the heaven and the *Tariq*.

Through research carried out by Jocelyn Bell Burnell, at Cambridge University in 1967, a regular radio signal was identified. Until that time, however, it was not known that there was a heavenly body that could be the source of regular pulse or beating rather like that of the heart. In 1967, however, astronomers stated that, as matter grows denser in the core as it revolves around its own axis, the star's magnetic field also grows stronger, and thus gives rise to a magnetic field at its poles 1 trillion times stronger than that of Earth. They realised that a body revolving so fast and with such a powerful magnetic field emits rays consisting of very powerful radio waves in a conic form at every revolution. Shortly afterwards, it was also realised that the source of these signals is the rapid revolution of neutron stars. These newly discovered neutron stars are known as "pulsars." These stars, which turn into pulsars through supernova explosions, are of the greatest mass, and are the brightest and fastest moving bodies in the universe. Some pulsars revolve 600 times a second.⁵⁰



Pulsars are the remains of extinguished stars which emit very powerful, pulse-like radio waves and which revolve very rapidly around their own axes. It has been calculated that there are more than 500 pulsars in the Milky Way, of which our Earth is a part.

The word "pulsar" comes from the verb to pulse. According to the *American Heritage Dictionary*, the word means to pulsate, to beat. *Encarta Dictionary* defines it as to beat rhythmically, to move or throb with a strong regular rhythm. Again, according to the *Encarta Dictionary*, the word "pulsate," which comes from the same root, means to expand and contract with a strong regular beat.

Following that discovery, it was realised that the phenomenon described in the Qur'an as "*tariq*," beating, bore a great similarity to the neutron stars known as pulsars.

Neutron stars form as the nuclei of super giant stars collapse. The highly compressed and dense matter, in the form of a rapidly revolving sphere, entraps and squeezes most of the star's weight and magnetic field. The powerful magnetic field created by these rapidly revolving neutron stars has been shown to cause the emission of powerful radio waves observable on Earth.

In the third verse of Surat at-Tariq the term "*al-najmu al-thaqibu*," meaning piercing, piercing and moving on, or opening holes, indicates that Tariq is a bright star that pierces a hole in the darkness and moves on. The concept of the term "*adraka*" in the expression "**And what will convey to you what the Tariq is?**" refers to comprehension. Pulsars, formed through the compression of stars several times the size of the Sun, are among those celestial bodies that are hard to comprehend. The question in the verse emphasizes how hard it is to comprehend this beating star. (Allah knows best.)

As discussed, the stars described as *Tariq* in the Qur'an bear a close similarity to the pulsars described in the 20th century, and may reveal to us another scientific miracle of the Qur'an.

THE STAR SIRIUS

When certain concepts mentioned in the Qur'an are studied in the light of 21st century scientific discoveries we find ourselves imparted with yet more miracles of the Qur'an. One of these is the star Sirius, mentioned in Surat an-Najm 49:

... it is He Who is the Lord of Sirius. (Qur'an, 53: 49)

The fact that the Arabic word "*shiaara*," the equivalent of the star Sirius, appears only in Surat an-Najm, meaning only "star," 49 is particularly striking. Because, considering the irregularity in the movement of Sirius, the brightest star in the night sky, as their starting point, scientists discovered that it was actually a double star. Sirius is actually a set of two stars, known as Sirius A and Sirius B. The larger of these is Sirius A, which is also the closer to the Earth and the brightest star that can be seen with the naked eye. Sirius B, however, cannot be seen without a telescope.

The Sirius double stars orbit in ellipses about one another. The orbital period of Sirius A & B about their common centre of gravity is 49.9 years. This scientific data is today accepted with one accord by the departments of astronomy at Harvard, Ottawa and Leicester Universities.⁵¹

This information is reported as follows in various sources:

Sirius, the brightest star, is actually a twin star ... Its orbit lasts 49.9 years. (Exposes Astronomiques, La troisième loi de KEPLER, <http://www.astrosurf.com/eratosthene/HTML/exposetheoastro.htm>)

As is known, the stars Sirius-A and Sirius-B orbit each other in a double bow every 49.9 years. (<http://www.dharma.com.tr/dkm/article.php?sid=87>)

The point requiring attention here is the double, bow-shaped orbit of the two stars around one another.

However, this scientific fact, the accuracy of which was only realised in the late 20th century, was miraculously indicated in the Qur'an 1,400 years ago. When verses 49 and 9 of Surat an-Najm are read together, this miracle becomes apparent:

... it is He Who is the Lord of Sirius, (Qur'an, 53: 49)

He was two bow-lengths away or even closer. (Qur'an, 53:9)

The description in Surat an-Najm 9 may also describe how these two stars approach one another in their orbits. (Allah knows best.) This scientific fact, that nobody could have known at the time of the revelation of the Qur'an, once again proves that the Qur'an is the Word of Almighty Allah.



The star Sirius appears in Surat an-Najm (meaning "star"). The double stars that comprise Sirius approach each other with their axes in a bow-shape once every 49.9 years. This astronomical phenomenon is indicated in the verses Surat an-Najm 9 and 49.

[He is] the Originator of the heavens and earth. When He decides on something, He just says to it, "Be!" and it is. (Qur'an, 2:117)

LIGHT AND DARK

Praise belongs to Allah Who created the heavens and the earth and appointed darkness and light... (Qur'an, 6:1)

We all know that without light a person cannot see his surroundings with the naked eye. However, the light that we can see is only a very small part of all light-emitting energy. There are other kinds of light-emitting energy that human beings cannot perceive, such as infra-red, ultra-violet, x-rays and radio waves. Human beings are effectively blind to such light waves.

It is interesting, therefore, that the word for "darkness" in the Qur'an is always in the plural. The Arabic word, "*ththulumat*," is used in the plural in 23 verses of the Qur'an, and never used in the singular. The use of the word "darkness" in the Qur'an indicates that in addition to those light waves we can see, there may also be other kinds.

Only recently did scientists discover why the plural may have been used here. Wave lengths vary in a form of energy known as electromagnetic radiation. All the different forms of electromagnetic radiation behave as energy waves in space. This can be compared to the waves which form when a stone is thrown into a pond. As the waves on a pond can be of different sizes, so electromagnetic radiation has different-sized waves.

Stars and other sources of light do not all give off the same kind of emissions. These different rays are classified according to their wavelengths. The spectrum of wavelengths is quite wide. There is a 10^{25} (a billion times a billion times a billion) difference between gamma rays, with the smallest size wavelength, and radio waves, which are the largest. Nearly all the rays emitted by the Sun are squeezed into just one part of this 10^{25} spectrum.

In order to better understand the colossal dimensions of this figure, it will be useful to make a comparison. If we wanted to count to 10^{25} , and if we counted day and night without pause, it would take us 100 million times the age of the Earth to finish. The different wavelengths in the universe are distributed within a spectrum of just such a size. 70% of the different wavelengths emitted by the Sun are limited to a very narrow spectrum between 0.3 microns and 1.5 microns. There are three kinds of light within that band: visible light, infra-red light and ultraviolet light. Despite occupying a band less than 1 in 10^{25} , the rays known as visible light represent 41% of all the Sun's rays.

As has been discussed, electromagnetic waves perceivable to the human eye are responsible for only a very small part of the light spectrum. The other regions represent only darkness for human beings, who are blind to wavelengths outside that band.⁵²

52. Husaini, Qur'an for Astronomy and Earth Exploration from Space, 175-182. 

COMBUSTION WITHOUT FIRE

Allah is the Light of the heavens and the earth. The metaphor of His Light is that of a niche in which is a lamp, the lamp inside a glass, the glass like a brilliant star, lit from a blessed tree, an olive, neither of the east nor of the west, its oil all but giving off light even if no fire touches it. Light upon Light. Allah guides to His Light whoever He wills and Allah makes metaphors for mankind and Allah has knowledge of all things. (Qur'an, 24:35)



This verse refers to something that emits light. This light-emitting entity is compared to a star. The fact that the fuel used by this star-like, light-emitting body belongs to neither East nor West may be an indication that the body has no physical dimensions. If one

assumes that the fuel source is in an energy dimension, then it is very likely that the fuel in the verse refers to electrical energy, and the light-emitting body to a light bulb.

A bulb is a body which shines like a star and emits light, inside glass, and that is in full conformity with the description in the verse. Unlike oil lamps and gas lamps, light bulbs do not burn oil, and, in line with the description supplied in the verse, combustion without fire takes place inside it. As a result of the vibration among the atoms of the heat-resistant tungsten wire, the temperature inside the bulb rises to over 2,000 Centigrade. This temperature, which would melt other metals, is so high that it gives rise to a powerful, visible light. Despite that heat, however, no combustion takes place, again in line with the verse, since the bulb contains no oxygen. In addition, the filament inside the bulb closely resembles a bright star.

If we bear in mind the fact that electricity is one of the greatest discoveries in the history of the world, and that it lights just about the entire world by means of bulbs, then we may well assume that the verse may be pointing to this major discovery. (Allah knows best.)

Another explanation could be that the light is emitted as a result of the nuclear reaction in stars. Stars are bright, hot, rotating masses of gas which emit large quantities of light and heat as a result of nuclear reactions. Most newly-forming large stars begin to collapse under the weight of their own gravitational pull. That means that their centres are hotter and denser. When the matter in the centre of the star is sufficiently heated-when it reaches at least 10 million degrees Centigrade-nuclear reactions begin.⁵³ What happens inside a star is that with enormous energy (fusion), hydrogen turns into helium. Nuclear fusion takes the particles that make up hydrogen and sticks them together to make helium (1 helium atom is made from 4 hydrogen atoms). In order to make the protons and neutrons in the helium stick together, the atom gives off tremendous energy. The energy released in the process is radiated from the surface of the star as light and heat. When the hydrogen is consumed, the star then begins to burn with helium, in exactly the same way, and heavier elements are formed. These reactions continue until the mass of the star has been consumed.

However, since oxygen is not used in these reactions inside stars, the result is not ordinary combustion, such as that takes place when burning a piece of wood. The combustion seen as giant flames in stars does not actually derive from fire. Indeed, burning of just this kind is described in the verse. If one also thinks that the verse refers to a star, its fuel and combustion without fire, then one can also think that it is referring to the emission of light and mode of combustion in stars. (Allah knows best.)

53. Digitale Ausgabe LexiRom (Digital Expenditure LexiRom) 

THE WEIGHT OF CLOUDS

The weight of clouds can reach quite astonishing proportions. For example, a cumulonimbus cloud, commonly known as the thunder cloud, can contain up to 300,000 tons of water.

The fact that a mass of 300,000 tons of water can remain aloft is truly amazing. Attention is drawn to the weight of clouds in other verses of the Qur'an:

It is He Who sends out the winds, bringing advance news of His mercy, so that when they have lifted up the heavy clouds, We dispatch them to a dead land and send down water to it, by means of which We bring forth all kinds of fruit... (Qur'an, 7:57)

It is He Who shows you the lightning, striking fear and bringing hope; it is He Who heaps up the heavy clouds. (Qur'an, 13:12)



At the time when the Qur'an was revealed, of course, it was quite impossible to have any information about the weight of clouds. This information, revealed in the Qur'an, but discovered only recently, is yet another proof that the Qur'an is the Word of Allah.

THE PROPORTION OF RAIN



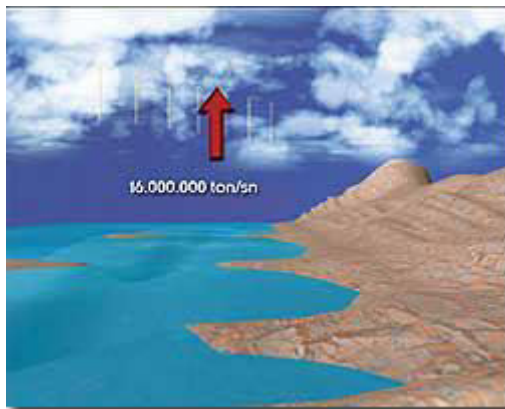
Another item of information provided in the Qur'an about rain is that it is sent down to Earth in "due measure." This is mentioned in Surat az-Zukhruf as follows:

It is He Who sends down water in due measure from the sky by which We bring a dead land back to life. That is how you too will be raised [from the dead]. (Qur'an, 43:11)

This measured quantity in rain has again been discovered by modern research. It is estimated that in one second, approximately 16 million tons of water evaporates from the Earth. This figure amounts to 513 trillion tons of water in one year. This number is equal to the amount of rain that falls on the Earth in a year. Therefore, water continuously circulates in a balanced cycle, according to a "measure." Life on Earth depends on this water cycle. Even if all the available technology in the world were to be employed for this purpose, this cycle could not be reproduced artificially.

Even a minor deviation in this equilibrium would soon give rise to a major ecological imbalance that would bring about the end of life on Earth. Yet, it never happens, and rain continues to fall every year in exactly the same measure, just as revealed in the Qur'an.

The proportion of rain does not merely apply to its quantity, but also to the speed of the falling raindrops. The speed of raindrops, regardless of their size, does not exceed a certain limit.



Every year, the amount of water that evaporates and that falls back to the Earth in the form of rain is "constant": 513 trillion tons. This constant amount is declared in the Qur'an by the

expression "sending down water in due measure from the sky." The constancy of this quantity is very important for the continuity of the ecological balance, and therefore, life.

Philipp Lenard, a German physicist who received the Nobel Prize in physics in 1905, found that the fall speed increased with drop diameter until a size of 4.5 mm (0.18 inch). For larger drops, however, the fall speed did not increase beyond 8 metres per second (26 ft/sec).⁵⁴ He attributed this to the changes in drop shape caused by the air flow as the drop size increased. The change in shape thus increased the air resistance of the drop and slowed its fall rate.

As can be seen, the Qur'an may also be drawing our attention to the subtle adjustment in rain which could not have been known 1,400 years ago.

54. Keith C. Heidorn, Ph.D., "Philipp Lenard: Brushing the Teardrops from Rain," www.islandnet.com/~see/weather/history/lenard.htm.


THE FORMATION OF RAIN

How rain was formed remained a great mystery for quite some time. Only after the weather radar was invented was it possible to discover the stages by which rain is formed.

According to this discovery, the formation of rain takes place in three stages. First, the "raw material" of rain rises up into the air with the wind. Later, clouds are formed, and finally raindrops appear.

The Qur'an's account of the formation of rain refers exactly to this process. In one verse, this formation is described in this way:

It is Allah Who sends the winds which stir up clouds which He spreads about the sky however He wills. He forms them into dark clumps and you see the rain come pouring out from the middle of them. When He makes it fall on those of His servants He wills, they rejoice. (Qur'an, 30:48)

Now, let us examine these three stages outlined in the verse in more detail.

FIRST STAGE: "It is Allah Who sends the winds..."

Countless air bubbles formed by the foaming of the oceans continuously burst and cause water particles to be ejected towards the sky. These particles, which are rich in salt, are then carried away by winds and rise upward in the atmosphere. These particles, which are called aerosols, function as water traps, and form cloud drops by collecting around the water vapour themselves, which rises from the seas as tiny droplets.

SECOND STAGE: "... which stir up clouds which He spreads about the sky however He wills. He forms them into dark clumps..."

The clouds are formed from water vapour that condenses around the salt crystals or dust particles in the air. Because the water droplets in these clouds are very small (with a diameter between 0.01 and 0.02 mm), the clouds are suspended in the air, and spread across the sky. Thus, the sky is covered in clouds.

THIRD STAGE: "...and you see the rain come pouring out from the middle of them"

The water particles that surround salt crystals and dust particles thicken and form raindrops, so, drops that become heavier than the air leave the clouds and start to fall to the ground as rain.

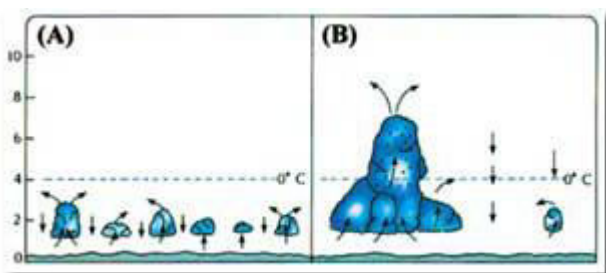
As already discussed, every stage in the formation of rain is related in the verses of the Qur'an. Furthermore, these stages are explained in exactly the right sequence. Just as with many other natural phenomena on the Earth, Allah gave the most correct explanation of this phenomenon, and made it known in the Qur'an centuries before it was discovered.

In another verse, the following information is given about the formation of rain:

Have you not seen how Allah drives along the clouds, then joins them together, then makes them into a stack, and then you see the rain come out of it? And He sends down from the sky mountain masses [of clouds] with cold hail in them, striking with it anyone He wills and averting it from anyone He wills. The brightness of His lightning almost blinds the sight. (Qur'an, 24:43)

Scientists studying cloud types came across surprising results with regards to the formation of rain clouds. Rain clouds are formed and shaped according to definite systems and stages. The stages of formation of one kind of rain cloud, cumulonimbus, are these:

1. STAGE, Being driven along: Clouds are carried along, that is, they are driven along, by the wind.



(A) Isolated small pieces of clouds (cumulonimbus clouds)

(B) When the small clouds join together, updrafts within the larger cloud increase. As a result, the cloud is stacked up.

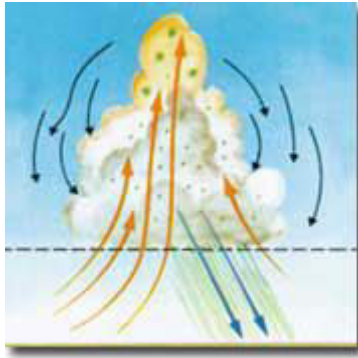
2. STAGE, Joining: Then, small clouds (cumulonimbus clouds) driven along by the wind join together, forming a larger cloud.⁵⁵

3. STAGE, Stacking: When the small clouds join together, updrafts within the larger cloud increase. The updrafts near the centre of the cloud are stronger than those near the edges. These updrafts cause the cloud body to grow vertically, so the cloud is stacked up. This vertical growth causes the cloud body to stretch into cooler regions of the atmosphere, where drops of water and hail formulate and begin to grow larger and larger. When these drops of water and hail become too heavy for the updrafts to support them, they begin to fall from the cloud as rain, hail, etc.⁵⁶

We must remember that meteorologists have only recently come to know these details about cloud formation, structure and function, by using advanced equipment like planes, satellites, computers etc. It is evident that Allah has provided us information that could not have been known 1,400 years ago.



The above illustration shows the water droplets being released into the air. This is the first stage in the formation of rain. After that, the water droplets in the newly formed clouds will be suspended in the air and then condense to form rain. All of these stages are related in the Qur'an.



These updrafts cause the cloud body to grow vertically and the cloud is stacked up. This vertical growth causes the cloud body to stretch into cooler regions of the atmosphere, where drops of water and hail formulate and begin to grow larger and larger. When these drops of water and hail become too heavy for the updrafts to support them, they begin to fall from the cloud as rain, hail, etc. This scientific fact was announced in Sura Nur 43 fourteen centuries ago by Allah in this way: **"... then [He] makes them into a stack, and then you see the rain come out of it..."**

55. Richard A. Anthes, et al., The Atmosphere, 3rd ed. (Columbus: Charles E. Merrill Publishing Company: 1981), 268-269; Albert Millers, Jack C. Thompson, Elements of Meteorology, 2nd ed. (Columbus: Charles E. Merrill Publishing Company: 1975), 141. [↑](#)
 56. Anthes, et al., The Atmosphere, 269; Millers, and Thompson, Elements of Meteorology, 141-142. [↑](#)

RAINS WHICH BRING A DEAD LAND BACK TO LIFE

The rain's function of "bringing a dead land back to life" is indicated in several verses of the Qur'an:

... We send down from heaven pure water so that by it We can bring a dead land to life and give drink to many of the animals and people We created. (Qur'an, 25:48-49)

As well as bringing water, an essential requirement for living things, to the earth, the rain also has a fertilising property. **Drops of rain which evaporate from the sea and reach the clouds contain certain substances which "revitalise" dead soil. These raindrops with such "revitalising" properties are called "surface tension droplets."** These form from the top layer of the surface of the sea, called the micro-layer by biologists; in this surface layer, less than one-tenth of a millimetre thick, are found large quantities of organic waste formed from the decomposition of microscopic algae and zooplanktons. Some of these wastes collect and absorb elements such as phosphorus, magnesium and potassium, which are rarely found in sea water, as well as heavy metals such as copper, zinc, cobalt and lead. Seeds and plants on the surface of the earth receive large quantities of the mineral salts and elements they need to grow from these raindrops. The Qur'an refers to this in these terms:



And We sent down blessed water from the sky and made gardens grow by it and grain for harvesting. (Qur'an, 50:9)

These salts which descend with the rain are examples in miniature of fertilisers traditionally used to enhance productivity (calcium, magnesium, potassium etc.). Heavy metals of the kind found in aerosols create elements which increase productivity during growth and production of plants. In short, rain is an important fertiliser. With the fertiliser which provided by rain alone, within a hundred years, a soil of poor quality can obtain all the elements necessary for plants. Forests also grow and are nourished with help from these chemicals which originate from the sea.

In this way, every year some 150 million tons of particles of fertiliser fall to earth. Were it not for this fertilising function, there would have been far fewer plants on the Earth and the balance of life would have been disturbed. The information about the revitalisation of plants in the verse is just one of the countless miraculous properties of the Qur'an.

THE FORMATION OF HAIL, THUNDER AND LIGHTNING

... He sends down mountains from the sky with hail inside them, striking with it anyone He wills and averting it from anyone He wills. The brightness of His lightning almost blinds the sight. (Qur'an, 24:43)

The above verse refers to hail and lightning. When the formation of hail and lightning are examined, it can be seen that an important meteorological truth is being indicated in this verse. About the formation of lightning and hail, the book *Meteorology Today* says that a cloud becomes electrified as hail falls through a region in the cloud of supercooled droplets and ice crystals. Liquid droplets freeze and release latent heat as they collide with a hailstone. This keeps the surface of the hailstone warmer than that of the surrounding ice crystals. An important phenomenon occurs when the hailstone comes in contact with an ice crystal: Electrons flow from the colder object toward the warmer one. In this way, the hailstone becomes negatively charged. This effect also occurs when supercooled droplets come in contact with a hailstone and small pieces of positively charged ice break off. These particles, which are lighter and positively charged, are carried to the upper part of the cloud by currents of air. The hail has a negative charge now, and falls towards the bottom of the cloud, thus the lower part of the cloud becomes negatively charged. These negative charges are then discharged as lightning. It may be concluded from this that hail is the main factor in the formation of lightning.⁵⁷

In the following verse, however, attention is drawn to the link between rain clouds and lightning, and to the order of formation, information that parallels that discovered by science:

Or [their likeness is] that of a storm-cloud in the sky, full of darkness, thunder and lightning. They put their fingers in their ears against the thunderclaps, fearful of death... (Qur'an, 2:19)

Rain clouds are tremendous masses covering 20 to 260 square metres (10 to 100 square miles) and reaching great vertical heights of 9,000 to 12,000 metres (30,000 to 40,000 ft.). Due to these extraordinary dimensions, the lower part of these clouds are dark. It is impossible for the Sun's rays to pass through them, because of the large quantities of water and ice particles they contain. Very little solar energy therefore reaches the Earth through the clouds, which is why the clouds appear dark to someone looking up at them.⁵⁸

The stages of the formation of thunder and lightning after that darkness, mentioned in the verse, are as follows: An electrical charge forms inside the rain cloud. This comes about as a result of such processes as freezing, the division of raindrops and charge formation during contact. The accumulation of such electrical charges, when the air between becomes unable to insulate them, leads to a great spark, a discharge between the positive and negative fields. The voltage between two oppositely charged areas can reach 1 billion volts. The spark can also form within the cloud, can cross between two clouds, from a positively charged area to a negative one, or be discharged from the cloud to the ground. These sparks form dazzling lightning strikes. This sudden increase in the electrical charge along the line of lightning causes intense heat (10,000 degrees Centigrade). As a result, there is a sudden expansion of the air, which in turn causes the loud noise associated with thunder.⁵⁹

The thunder glorifies His praise, as do the angels, out of fear of Him. He discharges the thunderbolts, striking with them anyone He wills. Yet still they argue about Allah when He is inexorable in His power!
(Qur'an, 13:13)

As has been discussed, dark layers, followed by the electrically charged sparks known as lightning, and then the loud noise called thunder, form within a rain cloud. Everything modern science has established about clouds, and has to say about the causes of thunder and lightning, is in complete accord with the descriptions in the Qur'an.

57. C. Donald Ahrens, *Meteorology Today: An Introduction to Weather, Climate and Environment*, 3rd ed. (St. Paul: West Publishing Company: 1988), 437. 

THE FECUNDATING WINDS

In one verse of the Qur'an, the "fecundating" characteristic of the winds, and the resulting formation of rain are mentioned.

And We send the fecundating winds, then cause water to descend from the sky, therewith providing you with water in abundance. (Qur'an, 15:22)



This verse points out that the first stage in the formation of rain is wind. Until the beginning of the 20th century, the only relationship known between the wind and the rain was that it was the wind that drove the clouds. However, modern meteorological findings have demonstrated the "fecundating" role of the wind in the formation of rain.

As explained earlier, this fecundating function of the wind works in the following way:

On the surface of oceans and seas, a large number of air bubbles form because of the water's foaming action. The moment these bubbles burst, thousands of tiny particles, with a diameter of just one hundredth of a millimetre, are thrown up into the air. These particles, known as "aerosols," mix with dust carried from the land by the wind, and are carried to the upper layers of the atmosphere. These particles carried to higher altitudes by winds come into contact with water vapour up there. Water vapour condenses around these particles and turns into water droplets. These water droplets first come together and form clouds, and then fall to the Earth in the form of rain. As mentioned, winds "fecundate" the water vapour floating in the air with the particles they carry from the sea, and eventually help the formation of rain clouds.

If winds did not possess this property, water droplets in the upper atmosphere would never form, and there would be no rain.

The most important point to be recognized here is that this critical role of the wind in the formation of rain was stated centuries ago in the Qur'an, at a time when very little was known about natural phenomena...



The picture above shows the stages in the formation of a wave. Waves are formed by the wind blowing above the surface of the water. With the wind, water particles start to move in a circular motion. This movement soon forms waves, one after the other, and bubbles formed by the waves spread in the air. This is the first stage in the formation of rain. This process is declared in the verse as "We send the fecundating winds and then cause water to descend from the sky."



Further information provided in the verse about the fertilising quality of the wind is its role in the pollination of flowers. Many plants on Earth disperse their pollen by means of the wind in order to ensure the survival of their species. Several open-seeded plants, pine trees, palm and similar trees, seeded plants that produce flowers, and grass-like plants are entirely pollinated by the wind. The wind carries the pollen from the plants to others of the species, thus fertilising them.

Until recently, the way that the wind was able to fertilise plants was unknown. When it was realised, however, that plants are divided into males and females, the fertilising role of the wind was also discovered. This truth was already indicated in the Qur'an: "... **[He] sent down water from the sky by which We have brought forth various different types of plants in pairs.**" (Qur'an, 20:53)

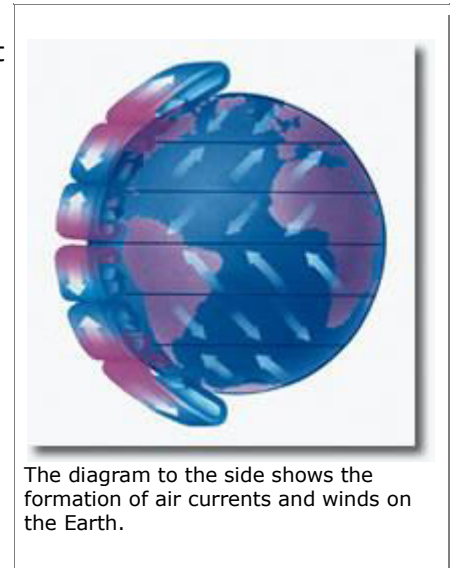
THE STAGES OF WIND FORMATION

... and [in His] directing of the winds, there are Signs for people who use their intellect. (Qur'an, 45:5)

Wind is a movement of air which forms between two different temperature centres. Due to the different pressures caused by different temperatures in the atmosphere, air constantly flows from areas of high pressure to areas of low pressure. If differences between pressure centres, in other words, temperatures in the atmosphere, are large, the flow of air, in other words, the wind, is very strong, so strong in fact that tornadoes which can inflict terrible damage can be formed.

What is astonishing here is that, despite there being belts of very different temperatures and pressures, such as the equator and the poles, thanks to the order in Allah's creation, our Earth is not exposed to disastrously fierce winds. Were the force of the winds that would otherwise blow between the poles and the equator not tempered, the Earth would become a dead planet constantly buffeted by tornadoes.

In the Arabic expression "*tasreefi rriyah*," in the above verse, the word "*tasreef*" means "turning over many times, directing, shaping something, managing, distributing." The choice of this word for the wind fully describes the way it blows in an ordered manner. It is also a clear expression of the fact that the wind does not blow by chance, of its own accord. It is Allah Who directs the winds in such a way as to make human life possible.



The diagram to the side shows the formation of air currents and winds on the Earth.

HOW THE PROCESS OF PHOTOSYNTHESIS BEGINS IN THE MORNING

And [I swear] by the night when it draws in, and by the dawn when it breathes in. (Qur'an, 81:17-18)



Light is one of the most essential elements in the performance of photosynthesis. Photosynthesis varies in proportion to the intensity and duration of the light source. With the reception of the Sun's rays in the morning, photosynthesis—in other words, the production of oxygen begins.

When plants undergo photosynthesis, they take in carbon dioxide, a harmful gas that human beings cannot consume, from the air, and give off oxygen instead. Oxygen, which we breathe and which is our basic source of life, is the main product of photosynthesis. Some 30% of the oxygen in the atmosphere is produced by plants on land, the remaining 70% being produced by plants and single-celled living things in the seas and oceans.

Photosynthesis is a complex process, and one which scientists have still not yet fully understood. This process cannot be observed with the naked eye, because the mechanism employs, atoms and molecules. However, we can see the results of photosynthesis in the oxygen which enables us to breathe, and in the foodstuffs that keep us alive. Photosynthesis is a system which involves complicated chemical formulae and units of weight, and on very small scale, and consisting of the most sensitive equilibriums. There are trillions of chemical laboratories that carry out this process in all the green plants around us. Furthermore, plants have been meeting our oxygen, food and energy needs non-stop for millions of years.

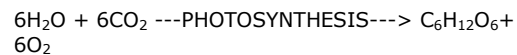
The productivity of photosynthesis is measured by the level of oxygen output. The greatest point is in the morning, when the Sun's rays are most concentrated. At dawn, the leaves begin to sweat, and photosynthesis increases accordingly. In the afternoon, however, the opposite applies; in other words photosynthesis slows down, and respiration increases because as the temperature rises perspiration also increases. At night, as the temperature falls, perspiration declines and the plant rests.

The term "*itha tanaffasa*" in Surat at-Takwir, in reference to the morning hours, in other words, "**when it breathes in**," is a metaphorical reference to breathing, respiration, or breathing deeply. This term particularly emphasises the way that the production of oxygen begins in the morning, and that the greatest levels of oxygen, essential for respiration, are given off at that time. The importance of the phenomena is also emphasised by the way that Allah swears upon it. The way that Allah indicates the

action of photosynthesis, among the most important discoveries of the 20th century, in this verse, is another of the scientific miracles of the Qur'an.



Photosynthesis is the use by plants and sometimes by certain bacteria and single-cell life forms of the Sun's rays in order to produce sugar (carbohydrate) from carbon dioxide and water. As a result of this reaction, the energy in the Sun's rays is stored inside the sugar molecule produced. The following formula summarises the reaction that takes place during the process by which unusable solar energy is transformed into usable chemical energy:



(6 water molecules + 6 carbon dioxide molecules are turned into 1 sugar molecule and 6 oxygen molecules by means of photosynthesis.)

THE SEAS NOT MINGLING WITH ONE ANOTHER

One of the properties of seas that has only recently been discovered is related in a verse of the Qur'an as follows:

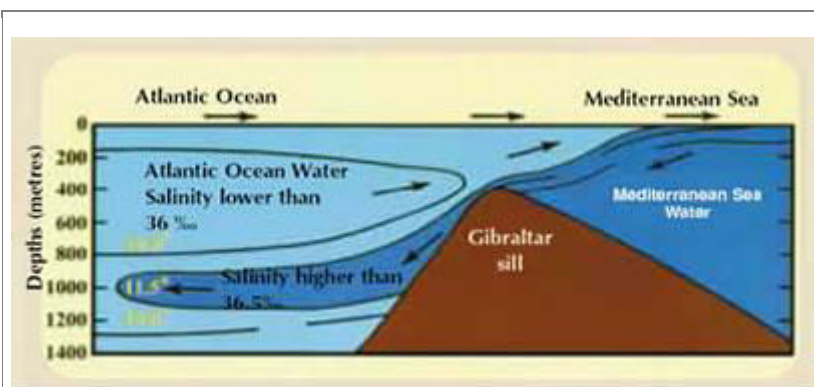
He has let loose the two seas, converging together, with a barrier between them they do not break through. (Qur'an, 55:19-20)

This property of the seas, that is, that they meet and yet do not intermix, has only very recently been discovered by oceanographers. Because of the physical force called "surface tension," the waters of neighbouring seas do not mix. Caused by the difference in the density of their waters, surface tension prevents them from mingling with one another, just as if a thin wall were between them.⁶⁰

It is interesting that, during a period when there was little knowledge of physics, and of surface tension, or oceanography, this truth was revealed in the Qur'an.



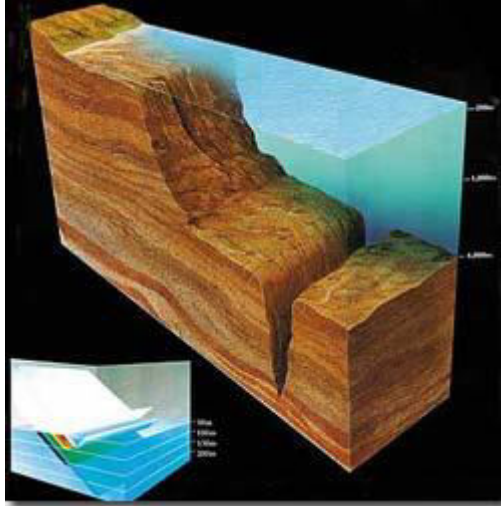
A satellite photograph of the Strait of Gibraltar.



There are large waves, strong currents, and tides in the Mediterranean Sea and the Atlantic Ocean. Mediterranean Sea water enters the Atlantic by Gibraltar. But their temperature, salinity, and densities do not change, because of the barrier that separates them.

DARKNESS IN THE SEAS AND INTERNAL WAVES

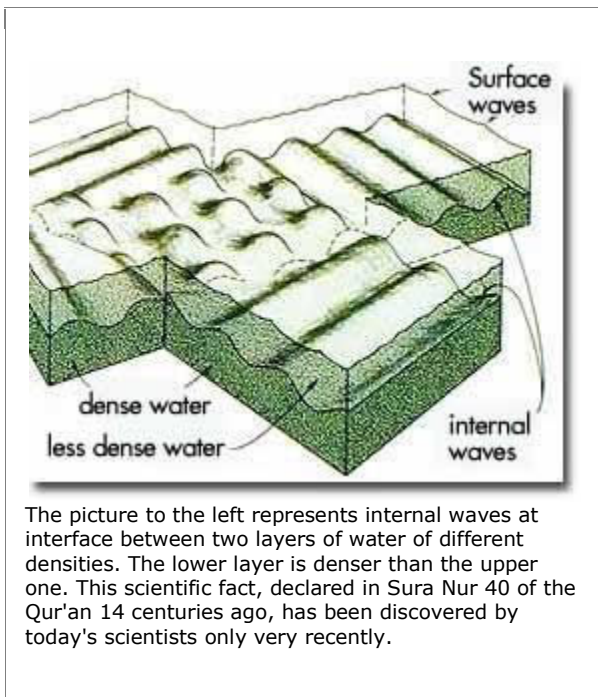
Or [the unbelievers' state] are like the darkness of a fathomless sea which is covered by waves above which are waves above which are clouds, layers of darkness, one upon the other. If he puts out his hand, he can scarcely see it. Those Allah gives no light to, they have no light. (Qur'an, 24:40)



Measurements made with today's technology have revealed that between 3 and 30 percent of the sunlight is reflected at the surface of the sea. Then, almost all of the seven colours of the light spectrum are absorbed, one after another, in the first 200 metres, except for blue light (picture at left). Below a depth of 1,000 metres, there is no light at all (above picture). This scientific fact was pointed out in Sura Nur 40 in the Qur'an 1,400 years ago.

In deep seas and oceans, the darkness is found at a depth of 200 meters and deeper. At this depth, there is almost no light, and below a depth of 1,000 meters there is no light at all.⁶¹

Today, we know about the general formation of the sea, the characteristics of the living things in it, its salinity, as well as the amount of water it contains, and its surface area and depth. Submarines and special equipment, developed with modern technology, have enabled scientists to obtain such information.



The picture to the left represents internal waves at interface between two layers of water of different densities. The lower layer is denser than the upper one. This scientific fact, declared in Sura Nur 40 of the Qur'an 14 centuries ago, has been discovered by today's scientists only very recently.

Human beings are not able to dive to a depth of more than 70 meters without the aid of special equipment. They cannot survive unaided in the dark depths of the oceans, such as at a depth of 200 meters. For these reasons, scientists have only recently been able to discover detailed information about the seas. However, that the depth of the sea is dark was revealed in the Qur'an 1,400 years ago. It is certainly one of the miracles of the Qur'an that such information was given at a time where no equipment to enable man to dive into the depths of the oceans was available.

In addition, the statement in Surat an-Nur 40 "**...like the darkness of a fathomless sea which is covered by waves above which are waves above which are clouds...**" draws our attention to another miracle of the Qur'an.

Scientists have only recently discovered that there are sub-surface waves, which "occur on density interfaces between layers of different densities." These internal waves cover the deep waters of seas and oceans because deep water

has a higher density than the water above it. Internal waves act like surface waves. They can break, just like surface waves. Internal waves cannot be discerned by the human eye, but they can be detected by studying temperature or salinity changes at a given location.⁶²

The statements in the Qur'an run parallel precisely the above explanation. Certainly, this fact, which scientists has discovered very recently, shows once again that the Qur'an is the word of Allah.

61. Danny Elder, and John Pernetta, *Oceans* (London: Mitchell Beazley Publishers: 1991), 27. [!\[\]\(c8d96c8885d3000a912c2582004aed63_img.jpg\)](#)

62. M. Grant Gross, *Oceanography, A View of Earth*, 6th ed. (Englewood Cliffs: Prentice-Hall Inc.: 1993), 205. [!\[\]\(919a2cb85b99741a73c0c31a427236a8_img.jpg\)](#)

THE REGION THAT CONTROLS OUR MOVEMENTS

No indeed! If he does not stop, We will grab him by the forelock, a lying, sinful forelock. (Qur'an, 96:15-16)

The expression "**the lying, sinful forelock**" in the above verse is most interesting. Research carried out in recent years has revealed that the prefrontal area, which is responsible for the management of particular functions of the brain, lies in the frontal part of the skull. Scientists only discovered the functions of this area, which the Qur'an pointed out 1,400 years ago, in the last 60 years. If we look inside to the brain at the front of the head, we will find the frontal area of the cerebrum. A book entitled *Essentials of Anatomy and Physiology*, which includes the results of the latest research on the functions of this area, says:

The motivation and the foresight to plan and initiate movements occur in the anterior portion of the frontal lobes, the prefrontal area. This is a region of association cortex...⁶³

The book also says:

In relation to its involvement in motivation, the prefrontal area is also thought to be the functional center for aggression...⁶⁴

So, this area of the cerebrum is responsible for planning, motivation, and initiating good and sinful behaviour, and is responsible for telling lies and the truth.

It is clear that the statement "the lying, sinful forelock" corresponds completely to the above explanations. Again, this fact which scientists have only discovered in the last 60 years, was stated by Allah in the Qur'an centuries ago.

63. Rod R. Seeley, Trent D. Stephens, and Philip Tate, *Essentials of Anatomy & Physiology*, 2nd ed. (St. Louis: Mosby-Year Book Inc.: 1996), 211. Also Charles R. Noback, N. L. Strominger, and R. J. Demarest, *The Human Nervous System, Introduction and Review*, 4th ed. (Philadelphia: Lea & Febiger: 1991), 410-411. [!\[\]\(d3102649f02e825ddb76dc3de0190154_img.jpg\)](#)

64. Seeley, Stephens, and Tate, *Essentials of Anatomy & Physiology*, 211. [!\[\]\(4b7a79268f6ba26c1471d4232fffa85a_img.jpg\)](#)

HEARTS FIND PEACE IN THE REMEMBRANCE OF ALLAH



According to research by David B. Larson, of the American National Health Research Center, and his team, comparisons of devout and non-religious Americans have given very surprising results. For instance, religious people suffer 60% less heart disease than those with little or no religious belief, the suicide rate among them is 100% lower, they suffer far lower levels of high blood pressure, and this ratio is 7:1 among smokers.⁶⁵

It was reported in one study published in the *International Journal of Psychiatry in Medicine*, an important scientific source in the world of medicine, that people who describe themselves as having no religious beliefs become ill more frequently and have shorter life spans. According to the results of the research, those with no beliefs are twice as likely to suffer stomach-intestine diseases than believers, and their mortality rate from respiratory diseases is 66% times higher than that of believers.

Secular psychologists tend to refer to similar figures as "psychological effects." This means that belief raises peoples' spirits, and this contributes to health. This explanation may indeed be reasonable, but a more striking conclusion emerges when the subject is examined. Belief in Allah is much stronger than any other psychological influence. The wide-ranging research into the connection between religious belief and physical health carried out by Dr. Herbert Benson of the Harvard Medical Faculty has produced surprising conclusions in this area. Despite not being a believer himself, Dr. Benson has concluded that worship and belief in Allah have a more positive effect on human health than that observed in anything else. Benson states that he has concluded that no belief provides as much mental peace as belief in Allah.⁶⁶

What is the reason for this connection between belief and the human soul and body? The conclusion reached by the secular researcher Benson is, in his own words, that the human body and mind are regulated to believe in Allah.⁶⁷

This fact, which the world of medicine has slowly begun to appreciate, is a secret revealed in the Qur'an in these words: **"... Only in the remembrance of Allah can the heart find peace."** (Qur'an, 13:28) The reason why those who believe in Allah, who pray to and trust in Him, are psychologically and physically healthier is that they behave in accordance with the purpose of their creation. Philosophies and systems which contradict human creation always lead to pain and unhappiness.

Modern medicine is now tending towards the realization of this truth. As Patrick Glynn put it: "[S]cientific research in psychology over the past twenty-five years has demonstrated that,... religious belief is one of the most consistent correlates of overall mental health and happiness."⁶⁸

65. Patrick Glynn, *God: The Evidence, The Reconciliation of Faith and Reason in a Postsecular World* (California: Prima Publishing: 1997), 80-81. [↑](#)

66. Herbert Benson, and Mark Stark, *Timeless Healing* (New York: Simon & Schuster: 1996), 203. [↑](#)

67. *Ibid.*, 193. [↑](#)

68. Glynn, *God: The Evidence, The Reconciliation of Faith and Reason in a Postsecular World*, 60-61.

FORGIVENESS ACCORDING TO THE MORALS OF ISLAM AND ITS BENEFITS ON HEALTH

One of the moral traits recommended in the Qur'an is forgiveness:

Hold to forgiveness, command what is right, and turn away from the ignorant. (Qur'an, 7: 199)

In another verse Allah commands: **"... They should rather pardon and overlook. Would you not love Allah to forgive you? Allah is Ever-Forgiving, Most Merciful."** (Qur'an, 24:22)

Those who do not abide by the moral values of the Qur'an find it very difficult to forgive others. Because, they are easily angered by any error committed. However, Allah has advised the faithful that forgiveness is more proper:

The repayment of a bad action is one equivalent to it. But if someone pardons and puts things right, his reward is with Allah... (Qur'an, 42:40)

... But if you pardon and exonerate and forgive, Allah is Ever-Forgiving, Most Merciful. (Qur'an, 64: 14)

It has also been revealed in the Qur'an that forgiveness is a superior moral trait: **"But if someone is steadfast and forgives, that is the most resolute course to follow."** (Qur'an, 42:43) For that reason, believers are forgiving, compassionate and tolerant people who, as revealed in the Qur'an, **"control their rage and pardon other people."** (Qur'an, 3:134)



Believers' notion of forgiveness is very different to that of those who do not live by the morals of the Qur'an. Even though many people may say they have forgiven someone who has offended them, it nevertheless takes a long time to free themselves of the hatred and anger in their hearts. Their behaviour tends to betray that anger. On the other hand, the forgiveness of believers is sincere. Because believers know that human beings are tried in this world, and learn by their mistakes, they are tolerant and compassionate. Moreover, believers are also capable of forgiveness even when they are in the right, and the other in the wrong. When forgiving, they make no distinction between large errors and small ones. Someone may cause severe losses to them by mistake. However, believers know that everything takes place under the command of Allah, and according to a specific destiny, and therefore, they surrender themselves to these developments, never acquiescing to anger.

According to recent research, American scientists established that those capable of forgiveness are healthier in both mind and body. Dr. Frederic Luskin, who holds a Ph.D. in Counselling and Health Psychology from Stanford University, and his team, studied 259 people living in the city of San Francisco. The scientists invited the subjects to attend six one-and-a-half-hour sessions, and aimed to instruct the subjects in forgiveness during their conversations.

The subjects of the experiments stated that they suffered less after forgiving people who had wronged them. The research showed that people who learned to forgive feel much better, not only emotionally but also physically. For example, it was established that after the experiment psychological and physical symptoms such as stress-related backache, insomnia and stomachaches were significantly reduced in these individuals.

In his book, ***Forgive for Good***, Dr. Frederic Luskin describes forgiveness as a proven recipe for health and happiness. The book describes how forgiveness promotes such positive states of mind as hope, patience and self-confidence by reducing anger, suffering, depression and stress. According to Dr. Luskin, harboured anger causes observable physical effects in the individual. He goes on to say that:

The thing about long-term or unresolved anger, is we've seen it resets the internal thermostat. When you get used to a low level of anger all the time, you don't recognize what's normal. It creates a kind of adrenaline rush that people get used to. It burns out the body and makes it difficult to think clearly-making the situation worse.⁶⁹

In addition, Dr. Luskin says, when the body releases certain enzymes during anger and stress, cholesterol and blood pressure levels go up-not a good long-term disposition to maintain the body in.⁷⁰

An article called "***Forgiveness***," published in the September-October 1996 edition of ***Healing Currents Magazine***, stated that anger towards an individual or an event led to negative emotions in people, and harmed their emotional balance and even their physical health.⁷¹ The article also states that people realise after a while that the anger is a nuisance to them, and wish to repair the damage to the relationship. So, they take steps to forgive. It is also stated that, despite all they endure, people do not want to waste the precious moments of their life in anger and anxiety, and prefer to forgive themselves and others.⁷²

In another study involving 1,500 people depression, stress and mental illness were observed to be less frequent in religious people. Dr. Herbert Benson, who conducted the research, linked this to the way religions encourage "forgiveness", and went on to say:

There's a physiology of forgiveness... When you do not forgive, it will chew you up.⁷³

According to an article titled, "Anger is Hostile To Your Heart," published in the ***Harvard Gazette***, anger is extremely harmful to the heart. Ichiro Kawachi, an assistant professor of medicine, and his team scientifically demonstrated this with various tests and measurements. As a result of their research, they established that grumpy old men had three times the risk of heart disease than their more tempered peers. "The tripling of risk," Kawachi says, "involves high levels of anger, explosive anger that includes smashing things and wanting to hurt someone in a fight."⁷⁴

Researchers believe that release of stress hormones, increased oxygen demand by the heart's muscle cells, and added stickiness of blood platelets, which leads to clots explain how anger increases the

chance of a heart attack.⁷⁵ Furthermore, at times of anger, the pulse rises above its normal level, and leads to increased blood pressure in the arteries, and thus to a greater risk of heart attack.

According to researchers, anger and hostility can also trigger the production of proteins linked to inflammation in the blood. The journal ***Psychosomatic Medicine*** suggested that the emotion triggers the production of inflammatory proteins, which may in turn be causing the hardening of the arteries, causing heart disease and stroke.⁷⁶ According to Associate Professor Edward Suarez of the Duke University Medical Centre in North Carolina, the protein interleukin 6 (or IL-6) is much higher in men who are angry and depressed. High blood levels of IL-6 lead to atherosclerosis, the build-up of fatty deposits in the lining of the walls of arteries.⁷⁷ According to Suarez, as well as factors such as smoking, high blood pressure, obesity and high cholesterol, heart disease is also linked to psychological states such as depression, anger and hostility.⁷⁸

Another article, titled "Anger Raises Risk of Heart Attack," published in ***The Times***, stated that a short temper might be a short cut to a heart attack, and that young men who reacted to stress by becoming angry were three times more likely to develop premature heart disease, and were five times more likely to have an early heart attack.⁷⁹ Scientists at John Hopkins University in Baltimore, Maryland, found that quick-tempered men are at risk of heart attack even if there is no family history of heart disease.⁸⁰

All the available research shows that anger is a state of mind that seriously damages human health. Forgiveness, on the other hand, even if it comes hard to people, is pleasing, an aspect of superior morals, that eliminates all the harmful effects of anger, and helps the individual to enjoy a healthy life, both psychologically and physically. Forgiveness, of course, is one of a form of behaviour by which a person can stay healthy, and a positive virtue everyone should live by. However, the true aim of forgiveness-as in all else-must be to please Allah. The fact that the features of this sort of morality, and that the benefits of which have been scientifically identified, have been revealed in many verses of the Qur'an, is just one of the many sources of wisdom it contains.

69. Jennifer Desai, "Stanford Forgiveness Project's Dr. Frederic Luskin studies why learning to forgive might be good for the body as well as the soul," Almanac, 9 June 1999, www.almanacnews.com/morgue/1999/1999_06_09.forgive.html. ↑

70. Ibid. ↑

71. Frederic Luskin, Ph.D., "Forgiveness," Healing Currents Magazine, September-October 1996, www.stanford.edu/~alexsox/4_steps_to_forgiveness.htm. ↑

72. Ibid. ↑

73. Claudia Kalb, "Faith & Healing," Newsweek, 10 November 2003, <http://msnbc.msn.com/id/3339654/site/newsweek>. ↑

74. William J. Cromie, "Anger is Hostile to Your Heart," Harvard Gazette, www.news.harvard.edu/gazette/1996/11.07/AngerisHostileT.html. ↑

75. Ibid. ↑

76. Peter Lavelle, "Anger trigger to heart disease found?," ABC Science Online, 5 August 2003, www.abc.net.au/science/news/stories/s915243.htm. ↑

77. Ibid. ↑

78. Ibid. ↑

79. Mark Henderson, "Anger Raises Risk of Heart Attack," The Times, London, 24 April 2002, www.rense.com/general24/anger.htm. ↑

80. Ibid. ↑

HOW PRAYER ACCELERATES THE TREATMENT OF THE SICK

Your Lord says, "Call on Me and I will answer you. Those who are too proud to worship Me will enter Hell abject." (Qur'an, 40:60)



According to the Qur'an, prayer, meaning "calling, giving expression, requesting, seeking help," is a person's turning sincerely to Allah, and seeking help from Him, the Almighty, the Compassionate and Merciful, in the knowledge that he is a dependent being. Illness is one of those instances when a person feels this dependence most and draws closer to Allah. Furthermore, sickness is a test, devised in His Wisdom, that takes place by His Will, and is a warning to remind people of the transience and imperfection of this life, and is also a source of

recompense in the Hereafter for the patient and submissive.

Those without faith, on the other hand, imagine that the way to recovery is through doctors, medicines or the advanced technological capabilities of modern science. They never pause to think that it is Allah Who causes their physical system to function when they are in good health, or Who creates the healing medicines and doctors when they are ill. Many turn only to Allah when they arrive at the opinion that doctors and medicines are inadequate. People in such situations seek help only from Allah, realising that only He can free them from their difficulty. Allah has revealed this mindset in a verse:

When harm touches man, he calls on Us, lying on his side or sitting down or standing up. Then when We remove the harm from him he carries on as if he had never called on Us when the harm first touched him. In that way We make what they have done appear good to the profligate. (Qur'an, 10:12)

The fact is, however, that even in good health, or without tribulations or other difficulties, a person must pray and give thanks to Allah for the comforts, good health and all the other blessings He has imparted.

One very important aspect of prayer is this: In addition to praying out loud, it is also important for a person to make every effort to pray through his or her deeds. Prayer by action means doing everything possible to attain a certain wish. For example, in addition to praying, a sick person may also have to visit an expert doctor, use medicines that will be of benefit, and receive hospital treatment if necessary, or some other form of special care. Because, Allah has linked everything that happens in this world to specific causes. Everything in the world and in the universe happens in accordance with these causes. Therefore, the individual must take the requisite measures in accordance with these causes, and yet await the outcome from Allah, with humility, submission and patience, in the knowledge that it is He Who brings about their results.

The positive effect of faith and prayer on the sick and the way these accelerate treatment is a matter that has attracted the attention of and is recommended by doctors. Under the heading "God and Health: Is Religion Good Medicine? Why Science Is Starting to Believe," the 10 November, 2003, edition of the famous magazine *Newsweek* took the curative effect of religion as its cover story. It reported that faith in God raised people's morale and helped them recover more easily, and that science had also begun to believe that people with religious faith recover more easily and quickly. According to a *Newsweek* survey, 72% of Americans say they believe that praying can cure someone and that prayer facilitates recovery. Research in Great Britain and the USA has also concluded that prayer reduces patients' symptoms and accelerates the recovery process.

According to research conducted at Michigan University, depression and stress are observed to lesser extent in the devout. And, according to findings at Rush University in Chicago, the early death rate among people who worship and pray regularly is some 25% lower than in those with no religious convictions. Another study conducted on 750 people, who underwent angiocardiology, proved scientifically the "curative power of prayer." It was established that the death rate among heart patients who prayed decreased by 30% within a year after their operations.

Examples of the prayers mentioned in the Qur'an are:

And Ayyub when he called out to his Lord, "Great harm has afflicted me and You are the Most Merciful of the merciful," We responded to him and removed from him the harm which was afflicting him and restored his family to him, and the same again with them, as a mercy direct from Us and a Reminder to all worshippers. (Qur'an, 21:83)

And Dhu'n-Nun [Yunus] when he left in anger and thought We would not punish him. He called out in the pitch darkness: "There is no god but You! Glory be to You! Truly I have been one of the wrongdoers." We responded to him and rescued him from his grief. That is how We rescue the believers. (Qur'an, 21:87-88)

And Zakariyya when he called out to his Lord, "My Lord, do not leave me on my own, though You are the Best of Inheritors." We responded to him and gave him Yahya, restoring for him his wife's fertility. They outdid one another in good actions, calling out to Us in yearning and in awe, and humbling themselves to Us. (Qur'an, 21:89-90)

Nuh called out to Us and what an excellent Responder We are! (Qur'an, 37:75)

As has already been stated, prayer must not only be for alleviation of sickness, or other mundane problems. A sincere believer must always pray to Allah and accept whatever comes from Him. The fact that the benefits of prayer revealed in many verses of the Qur'an are now being recognised scientifically, once again reveals the miraculous nature of the Qur'an.

If My servants ask you about Me, I am near. I answer the call of the caller when he calls on Me. They should therefore respond to Me and believe in Me so that hopefully they will be rightly guided. (Qur'an, 2:186)

STRESS AND DEPRESSION: THE RESULTS OF NOT ABIDING BY THE RELIGION

"But if anyone turns away from My reminder, his life will be a dark and narrow one..." (Qur'an, 20:124)

When Allah desires to guide someone, He expands his breast to Islam. When He desires to misguide someone, He makes his breast narrow and constricted as if he were climbing up into the sky. That is how Allah defiles those who have no faith. (Qur'an, 6:125)

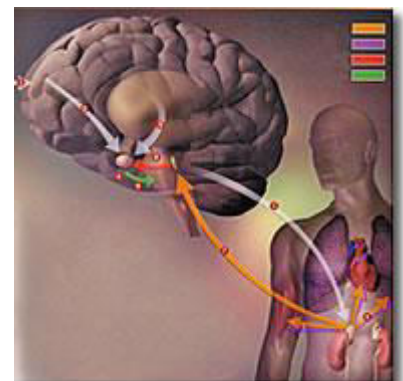
The failure of irreligious people in submitting themselves to Allah causes them to be in a constant state of ill-ease, anxiety and stress. As a consequence, they are afflicted by various psychological illnesses which reveal themselves in their physical selves. Their bodies wear down more quickly, and they age rapidly and degenerate.

However, since believers are psychologically healthy, they do not fall prey to stress, or despondence, and their bodies are ever fit and healthy. The positive effects of their submitting to Allah, their trust in Him and fortitude, looking for the good in all things, and accepting what happens with the hope of His promise, are reflected in their physical selves. This, of course, applies only to those who live by the moral values of the Qur'an, and who truly comprehend the religion. Of course, they may fall ill and eventually grow old, but this natural process does not involve the psychological breakdown it does in others.

Stress and depression, regarded as the diseases of our time, not only cause psychological harm, but also manifests themselves in various physical defects. The common stress and depression-related problems are some forms of mental illness, drug addiction, insomnia, skin, stomach and blood pressure disorders, colds, migraines, a number of bone diseases, kidney imbalances, respiratory difficulties, allergies, heart attacks, and brain swelling. Of course, stress and depression are not the only causes of these, but it has been scientifically proven that the origins of problems such as these are usually psychological.

Stress, which afflicts so many, is a state of mental anxiety caused by such feelings as fear, insecurity, overexcitement, worry and other pressures, that damages the body's equilibrium. When people become victims of stress, their bodies react and sound the alarm, and various biochemical reactions in the body are initiated: The level of adrenaline in the bloodstream rises; energy consumption and bodily reactions reach their maximum levels; sugar, cholesterol and fatty acids are deposited into the bloodstream; blood pressure rises and the pulse accelerates. When glucose is sent to the brain, cholesterol levels rise, and that all spells trouble for the body.

Because chronic stress, in particular, alters the normal functions of the body, it can cause serious harm. Due to stress, adrenalin and cortisol levels in the body rise to abnormal levels. Long-term increases in cortisol levels lead to the premature appearance of disorders such as diabetes, heart disease, high blood pressure, cancer, ulcers, respiratory diseases, eczema and psoriasis. The effects of high cortisol levels may even include the killing off of brain cells. The disorders caused by stress are described as follows in one source:



As a result of physical or psychological stress, the individual's adrenal gland (the gland above each kidney) secretes large amounts of glucocorticoid hormones. These hormones increase the energy level of muscles, and temporarily halt such activities as growth—which are inessential at that moment. In cases of extreme physical and chronic psychological stress these hormones, which are otherwise of vital importance, can give rise to stress related disorders, such as high blood pressure, obesity, bone erosion and stomach ulcers.

There is an important relationship between stress and the tension and pain it gives rise to. The tension caused by stress leads to narrowing of the arteries, disruption of the flow of blood to certain regions of the head and a reduction in the amount of blood flowing to that region. If a tissue is deprived of blood this leads directly to pain, because a tense tissue on one side probably requiring greater amounts of blood and on the other side already having insufficient blood supply stimulates special pain receptors. At the same time substances such as adrenaline and norepinephrine, which affect the nervous system during stress, are secreted. These directly or indirectly increase and accelerate the tension in the muscles. Thus pain leads to tension, tension to anxiety, and anxiety intensifies pain.⁸¹

However, one of the most detrimental effects of stress is heart attacks. Research shows that aggressive, nervous, anxious, impatient, competitive, hostile and irritable people have a much higher incidence of heart attacks than people less inclined to these traits.⁸²

The reason for this is that extreme stimulation of the sympathetic nervous system, initiated by the hypothalamus, also causes excessive secretion of insulin, and therefore the accumulation of insulin in the blood. This is a matter of vital importance. Because, none of the conditions that lead to coronary heart disease play such a definitive and harmful role as excess insulin in the blood.⁸³

Scientists have recognized that the higher the level of stress, the more the positive effects of the red cells in the blood are weakened. According to an experiment developed by Linda Naylor, head of the Oxford University's technology transfer company, the negative effect of stress levels on the immune system can now be measured.

There is a close relationship between stress and the immune system. Physiological stress has an important effect on the immune system and results in its deterioration. When under stress, the brain increases production of the cortisol hormone in the body, which weakens the immune system. To put it another way, there is a direct relationship between the brain, the immune system and hormones. Experts in the field state:

Studies on psychological or physical stress have revealed that at times of intense stress there is a fall in immunity response linked to the hormonal balance. It is known that the emergence and strength of many illnesses including cancer is linked to stress.⁸⁴

In short, stress harms a human being's natural equilibrium. Constant exposure to this abnormal condition impairs the body's health, and leads to a wide variety of disorders. Experts classify the negative effects of stress on the human body under the following basic categories:

Anxiety and Panic: A feeling that events are spiralling out of control

Constantly increasing perspiration

Voice changes: Stammering, trembling speech

Hyperactivity: Sudden explosions of energy, weak diabetic control

Sleeping difficulty: Nightmares

Skin diseases: Spots, acne, fever, psoriasis and eczema

Gastrointestinal indications: Indigestion, nausea, ulcers

Muscular tension: Grinding or locking teeth, aches in the jaw, back, neck and shoulders

Low intensity infections: Colds etc.

Migraine

Palpitations, chest pain, high blood pressure

Kidney imbalances, holding water

Respiratory disorders, shortness of breath

Allergies

Joint pains

Dry mouth and throat

Heart attack

Weakening of the immune system

Shrinkage in the brain region

Feelings of guilt and lack of self-confidence

Confusion, inability to analyse correctly, poor thinking ability, weak memory

Extreme pessimism, believing that everything is going badly

Difficulty in moving or staying still, constant rhythm beating

Inability to concentrate or difficulty in so doing

Irritability, extreme sensitivity

Irrationality

Feelings of helplessness or hopelessness

Loss of or increased appetite

The fact that those who fail to abide by religious moral values experience "stress" is revealed by Allah in the Qur'an:

"But if anyone turns away from My reminder, his life will be a dark and narrow one..." (Qur'an, 20:124)

In another verse, Allah has revealed that **"... the earth became narrow for them, for all its great breadth, and their own selves became constricted for them and they realised that there was no refuge from Allah except in Him..."** (Qur'an, 9:118)

This "dark and narrow" life, or stress, to give it the current name, is the outcome of non-believers' failure to abide by the moral values imparted by faith. Today, doctors maintain that a calm and self-assured composure are essential for protection from the effects of stress. A calm and peaceful disposition is only possible by living according to the Qur'an. Indeed, it has been revealed in many verses of the Qur'an that Allah imparts **"serenity"** upon the believers. (Qur'an, 2:248, 9:26, 40, 48:4, 18) Our Lord's promise to the faithful has been revealed as follows:

Anyone who acts rightly, male or female, being a believer, We will give them a good life and We will recompense them according to the best of what they did. (Qur'an, 16:97)

81. Acar Baltas, and Zuhail Baltas, Stres ve Basa Cikma Yollari (Stress and How to Manage It) 15th ed. (Remzi Kitabevi), 162. [↑](#)

82. Jane E. Brody, "Tool of survival is deadly for heart," The New York Times, 23 May 2002, www.ihf.com/articles/58687.html. [↑](#)

83. Baltas, and Baltas, Stres ve Basa Cikma Yollari (Stress and How to Manage It), 159. [↑](#)

84. Ibid., 169. [↑](#)

THE BIRTH OF A HUMAN BEING

Many diverse subjects are mentioned in the Qur'an while also inviting people to believe. Sometimes the heavens, sometimes animals, and sometimes plants are mentioned as evidence of Allah's existence. In many of these verses, people are called upon to consider their own creation. They are often reminded how man came into the world, which stages he has passed through, and what his essence is:

It is We Who have created you. Why, then, do you not accept the truth? Have you ever considered that [seed] which you emit? Is it you who create it? Or are We the Creator? (Qur'an, 56:57-59)

The miracle of man's creation is emphasised in many verses. Some of the information within these verses is so detailed that it was impossible for anyone living in the 7th century to have known it. Examples of these are as follows:

1. Man is not created from the entire semen, but only a very small portion of it (sperm).
2. It is the male that determines the sex of the baby.
3. The human embryo adheres to the mother's uterus like a leech.
4. The embryo develops in three dark regions in the uterus.

The items of information just quoted were far above the level of learning of the people living at that time. The discovery of these facts could only become possible by the technology attained in the 20th century.

Now, let us examine these items one at a time.

A Drop of Semen



In the picture to the left, we see semen ejected into the uterus. Only very few sperms out of 250 million sperms emitted from the male can make it to the ovum. The sperm that will fertilise the egg is the only one out of a thousand sperms that have managed to survive.

The fact that man is made not from the entire semen—but only a small part of it—is related in the Qur'an with the expression, "a drop of ejected semen."

Sperm undertake a journey into the mother's body until they reach the ovum. Only a thousand out of 250 million sperm succeed in reaching the ovum. At the end of this five-minute race, the ovum, half the size of a grain of salt, will let only one of the sperms in. That is, the substance of man is not the whole semen, but only a small part of it. This is explained in the Surat al-Qiyama as follows:

Does man reckon he will be left uncontrolled [without purpose]? Was he not once a drop of ejected semen? (Qur'an, 75:36-37)

As we have seen, the Qur'an informs us that man is made not from the entire semen, but only a small part of it. That the particular emphasis in this verse announces a fact only discovered by modern science is evidence that the Qur'an is the Word of Allah.

The Mixture in the Semen

The fluid referred to as semen, which contains the sperm, does not consist of sperm alone. On the contrary, it is made up of a mixture of different fluids. Seminal fluid is a collection of substances secreted from the testicles, the seminal vesicles, the prostate gland and glands linked to the urinary tract. A detailed analysis of this fluid shows that it consists of a great many separate substances, such as citric acid, prostaglandin, flavin, ascorbic acid, ergothioneine, cholesterol, phospholipids, fibrinolysin, zinc, phosphatase acid, phosphase, hyaluronidase and sperm. These fluids exercise different functions, such as containing the sugar necessary for providing energy for the sperm, neutralizing the acids at the entrance of the uterus, and providing a slippery substance for the easy movement of the sperm.



In the Qur'an, it is said that masculinity or femininity are created out of "a drop of semen which has been ejected." Until fairly recently, it was believed that a baby's sex was determined by the mother's cells. Science only discovered this information given in the Qur'an in the 20th century. This and many other similar details about the creation of man were stated in the Qur'an centuries ago.

When semen is mentioned in the Qur'an, this fact, which was discovered by modern science, is also referred to, and semen is defined as a mixed fluid:

We created man from a mingled drop to test him, and We made him hearing and seeing. (Qur'an, 76:2)

In other verses, semen is again referred to as a mixture, and it is stressed that man is created from the "extract" of this mixture:

He Who has created all things in the best possible way. He commenced the creation of man from clay; then He made his progeny from an extract of discarded fluid. (Qur'an, 32:7-8)

The Arabic word "sulala," translated as "extract," means the essential or best part of something. By either meaning, it refers to "part of a whole." This shows that the Qur'an is the Word of Allah, Who knows the creation of man to its minute details.

The Sex of the Child

Until fairly recently, it was thought that a baby's sex was determined by the mother's cells. Or at least, it was believed that the sex was determined by the male and female cells together. But, we are given different information in the Qur'an, where it is stated that masculinity or femininity is created out of "a drop of sperm which has been ejected."

He has created both sexes, male and female from a drop of semen which has been ejected. (Qur'an, 53:45-46)

Was he not a drop of ejaculated sperm, then a blood-clot which He created and shaped, making from it both sexes, male and female? (Qur'an, 75:37-39)

The developing disciplines of genetics and molecular biology have scientifically validated the accuracy of this information given by the Qur'an. It is now understood that sex is determined by the sperm cells from the male, and that the female has no role in this process.



The Y chromosome carries characteristics of masculinity, while the X chromosome

carries those of femininity. In the mother's egg, there is only the X chromosome, which determines female characteristics. In the semen from the father, there are sperms that include either X or Y chromosomes. Therefore, the sex of the baby depends on whether the sperm fertilising the egg contains an X or Y chromosome. In other words, as stated in the verse, the factor determining the sex of the baby is the semen, which comes from the father. This knowledge, which could not have been known at the time when the Qur'an was revealed, is evidence to the fact that the Qur'an is the Word of Allah.

Chromosomes are the main elements in determining sex. Two of the 46 chromosomes that determine the structure of a human being are identified as the sex chromosomes. These two chromosomes are called "XY" in males, and "XX" in females, because the shapes of the chromosomes resemble these letters. The Y chromosome carries the genes that code for masculinity, while the X chromosome carries the genes that code for femininity.



The formation of a new human being begins with the cross combination of one of these chromosomes, which exist in males and females in pairs. In females, both components of the sex cell, which divides into two during ovulation, carry X chromosomes. The sex cell of a male, on the other hand, produces two different kinds of sperm, one that contains X chromosomes and the other Y chromosomes. If an X chromosome from the female unites with a sperm that contains an X chromosome, then the baby is female. If it unites with the sperm that contains a Y chromosome, the baby is male.

In other words, a baby's sex is determined by which chromosome from the male unites with the female's ovum.

None of this was known until the discovery of genes in the 20th century. Indeed, in many cultures, it was believed that a baby's sex was determined by the female. That was why women were blamed when they gave birth to girls.

Fourteen centuries before human genes were discovered, however, the Qur'an revealed information that denies this superstition, and referred to the origin of sex lying not with women, but with the semen deriving from men.

The " Alaq" Clinging to the Uterus



In the first phase of its development, the baby in the mother's womb is in the form of a zygote, which clings to the uterus in order to take nourishment from the mother's blood. In the picture above is a zygote, which looks like a piece of flesh. This formation, which has been discovered by modern embryology, was miraculously stated in the Qur'an 14 centuries ago with the word "alaq," which means "a thing that clings to some place" and is

If we continue to examine the facts announced to us in the Qur'an, about the formation of human beings, we again encounter some very important scientific truth.

used to describe leeches that cling to a body to suck blood.

When the sperm of the male unites with the ovum of the female, the essence of the baby to be born is formed. This single cell, known as a "zygote" in biology, will instantly begin reproducing by dividing, and eventually become a "piece of flesh," called an embryo. This, of course, can only be seen by human beings with the aid of a microscope.

The embryo, however, does not spend its developmental period in a void. It clings to the uterus, with something like roots that is firmly fixed to the earth by its tendrils. Through this bond, the embryo can obtain the substances essential to its development from the mother's body.⁸⁵

Here, an important miracle of the Qur'an is revealed. While referring to the embryo developing in the mother's womb, Allah uses the word "*alaq*" in the Qur'an:

Recite: In the name of your Lord Who created man from *alaq*. Recite: And your Lord is the Most Generous. (Qur'an, 96:1-3)

The meaning of the word "*alaq*" in Arabic is "a thing that clings to some place." The word is literally used to describe leeches that cling to a body to suck blood.

Certainly, the use of such a specific word for the embryo developing in the mother's womb, proves once again that the Qur'an is the Word of Allah, the Lord of all the Worlds.

The Wrapping of Muscles over the Bones

Another important item of information provided in the verses of the Qur'an is the developmental stages of a human being in the mother's womb. It is stated in these verses that in the mother's womb, the bones develop first, and then the muscles form which wrap around them.

[We] then formed the drop into a clot and formed the clot into a lump and formed the lump into bones and clothed the bones in flesh; and then brought him into being as another creature. Blessed be Allah, the Best of Creators! (Qur'an, 23:14)



The bones of the baby completing its development in the mother's womb are clothed with flesh during one particular stage exactly as stated in the Qur'an.

Embryology is the branch of science that studies the development of the embryo in the mother's womb. Until very recently, embryologists assumed that the bones and muscles in an embryo developed at the same time. Yet, advanced microscopic research conducted by virtue of new technological developments has revealed that the revelation of the Qur'an is word for word correct.

These observations at the microscopic level showed that the development inside the mother's womb takes place in just the way it is described in these verses. First, the cartilage tissue of the embryo ossifies. Then, muscular cells that are selected from amongst the tissue around the bones come together and wrap around the bones.

This event is described in a scientific publication titled *Developing Human* in the following words:

... [T]he shape of the skeleton determines the general appearance of the embryo in the bones stage during the 7th week; muscles do not develop at the same time but their development follows soon after. The muscles take their positions around the bones throughout the body and therefore clothe the bones. Thus, the muscles take their well known forms and structures... The stage of clothing with muscle occurs during the 8th week...⁸⁶

In short, developmental stages of man, as described in the Qur'an, are in perfect harmony with the findings of modern embryology.



Many stages of a baby's development in the mother's womb are related in the Qur'an. As described in Surat al-Muminun 14, the cartilage of the embryo in the mother's womb ossifies first. Then these bones are covered with muscle cells. Allah describes this development with the verse: "... [We then] formed the lump into bones and clothed the bones in flesh."

Three Dark Stages of the Baby in the Womb

In the Qur'an, it is related that man is created through a three-stage process in the mother's womb.

... He creates you stage by stage in your mothers' wombs in threefold darkness. That is Allah, your Lord. Sovereignty is His. There is no god but Him. So what has made you deviate? (Qur'an, 39:6)

The expression "*fee thulumatin thalathin*," translated into English as "a threefold darkness," indicates three dark regions involved during the development of the embryo. These are:

The darkness of the abdomen

The darkness of the womb

The darkness of the placenta

As we have seen, modern biology has revealed that the embryological development of the baby takes place in the manner revealed in the verse, in three dark regions. Moreover, advances in the science of embryology show that these regions consist of three layers each.

The lateral abdominal wall comprises three layers: the external oblique, the internal oblique, and transverses abdominis muscles.⁸⁷

Similarly, the wall of the womb also consists of three layers: the epimetrium, the myometrium and the endometrium.⁸⁸

Similarly again, the placenta surrounding the embryo also consists of three layers: the *amnion* (the internal membrane around the fetus), the *chorion* (the middle amnion layer) and the *decidua* (outer amnion layer).⁸⁹

It is also pointed out in this verse that a human being is created in the mother's womb in three distinct stages.

Indeed, modern biology has also revealed that the baby's embryological development takes place in three distinct regions in the mother's womb. Today, in all the embryology textbooks studied in departments of medicine, this subject is taken as an element of basic knowledge. For instance, in *Basic Human Embryology*, a fundamental reference text in the field of embryology, this fact is stated as follows:



The life in the uterus has three stages: pre-embryonic; first two and a half weeks, embryonic; until the end of the eight week, and fetal; from the eight week to labor.⁹⁰

These phases refer to the different developmental stages of a baby. In brief, the main characteristics of these developmental stages are as follows:

- Pre-embryonic Stage

In this first phase, the zygote grows by division, and when it becomes a cell cluster, it buries itself in the wall of the uterus. While they continue growing, the cells organize themselves in three layers.

- Embryonic Stage

The second phase lasts for five and a half weeks, during which the baby is referred to as an "embryo." During this stage, the basic organs and systems of the body start to appear from the cell layers.

- Foetal Stage

From this stage onward, the embryo is called a "foetus." This phase begins at the eighth week of gestation, and lasts until the moment of birth. The distinctive characteristic of this stage is that the foetus looks much like a human being, with its face, hands and feet. Although it is only 3 cm long initially, all of its organs have become apparent. This phase lasts for about 30 weeks, and development continues until the week of delivery.

Information on the development in the mother's womb became available only after observations with modern devices. Yet, just like many other scientific facts, in a miraculous way, Allah draws our attention to these items of information in the verses of the Qur'an. The fact that such detailed and accurate information was given in the Qur'an at a time when people had scarce information on medical matters is clear evidence that the Qur'an is the Word of Allah.



In Surat az-Zumar 6, it is pointed out that man is created in the mother's womb in three distinct regions. Indeed, modern embryology has revealed that the baby's embryological development takes place in three distinct regions in the mother's womb.

85. Keith L. Moore, et al., Human Development as Described in the Qur'an and Sunnah (Makkah: Commission on Scientific Signs of the Qur'an and Sunnah, 1992), 36. [↑](#)

86. Keith L. Moore, Developing Human, 3rd ed. (W. B. Saunders Company: 1982), 364a. [↑](#)

87. <http://anatomy.med.unsw.edu.au/cbl/embryo/Notes/git4.htm>; and www.yoursurgery.com/ProcedureDetails.cfm?BR=1&Proc=74. [↑](#)

88. <http://virtual.yosemite.cc.ca.us/uyeshiros/AP50/Repro.htm>. [↑](#)

89. Kazi, 130 Evident Miracles in the Qur'an, 84. [↑](#)

90. Williams P., Basic Human Embryology, 3rd ed., 1984, 64. [↑](#)

THE CREATION OF HUMAN BEINGS FROM WATER

Allah created every [living] creature from water. Some of them go on their bellies, some of them on two legs, and some on four. Allah creates whatever He wills. Allah has power over all things. (Qur'an, 24:45)

Do those who disbelieve not see that the heavens and the earth were sewn together and then We unstitched them and that We made from water every living thing? So will they not believe? (Qur'an, 21:30)

And it is He Who created human beings from water and then gave them relations by blood and marriage. Your Lord is All-Powerful. (Qur'an, 25:54)

When we look at the verses concerned with the creation of human beings and living things, we clearly see evidence of a miracle. One such miracle is of the creation of living things from water. It was only possible for people to come by that information, clearly expressed in those verses, hundreds of years afterwards with the invention of the microscope.



All life forms need water in order to survive. Animals in dry regions, therefore, have been created with mechanisms to protect their metabolisms from water loss and to ensure maximum benefit from water use. If water loss takes place in the body for any reason, and if that loss is not made good, death will result in a few days. The famous 17th century scientist Jan Baptista van Helmont discovered in 1640s that water in the soil was the most important element of plant development.

The words "Water is the main component of organic matter. 50-90% of the weight of living things consists of water" appear regularly in encyclopaedias. Furthermore, 80% of the cytoplasm (basic cell material) of a standard animal cell is described as water in biology textbooks. The analysis of cytoplasm and its appearance in textbooks took place hundreds of years after the revelation of the Qur'an. It is therefore impossible for this fact, now accepted by the scientific community, to have been known at the time the Qur'an was revealed. Yet, attention was drawn to it in the Qur'an 1,400 years before its discovery.

CREATION FROM CLAY

In the Qur'an, Allah reveals that the creation of the human is a miracle. The first human being was created by Allah shaping clay into human form and breathing a soul into it:

Your Lord said to the angels, "I am going to create a human being out of clay. When I have formed him and breathed My Spirit into him, fall down in prostration to him!" (Qur'an, 38:71-72)

Then inquire of them: Is it they who are stronger in structure or other things We have created? We created them from sticky clay. (Qur'an, 37:11)

When the human body is examined today, it may be discovered that many elements present on the earth are also to be found in the body. Living tissues contain 95% carbon, hydrogen, oxygen, nitrogen, phosphorus and sulphur, with a total of 26 different elements.⁹¹ In another verse of the Qur'an we are told:

We created man from an extract of clay. (Qur'an, 23:12)

The Arabic word "*sulala*," translated as "extract" in the verse, means "representative example, essence." As we have seen, the information revealed in the Qur'an 1,400 years ago confirms what modern science tells us-the fact that the same elements are employed in human creation as those found in the soil.

Below is a diagram showing the distribution of the elements in a 70-kilo human being.

Element	Symbol	Main Function	%	Weight
Macro-minerals				Gram
Oxygen	O	Respiration of cells/tissues, a component of water	65.0	43,000
Carbon	C	Organic structure	18.5	12,000
Hydrogen	H	Component of water/tissue	9.5	6,300
Nitrogen	N	Component of protein/tissue	3.3	2,000
Calcium	Ca	Bones and teeth	1.5	1,100
Phosphorus	P	Bones and teeth	1.0	750
Potassium	K	Intracellular electrolyte	0.35	225
Sulfur	S	Amino acids (hair and skin)	0.25	150
Chlorine	Cl	Amino acids (hair and skin)	0.15	100
Sodium	Na	An electrolyte when in the form of chloride	0.15	90
Magnesium	Mg	An electrolyte when in the form of chloride	0.05	35
Silicon	Si	Intracellular electrolyte	0.05	30
		Electrolyte of metabolism		
		Connective tissue/bone		
Macro-minerals			%	Miligram
Iron	Fe	Carrier of hemoglobin/oxygen	0.01	4,200
Zinc	Zn	Content of enzyme/DNA synthesis, immunity support	0.01	2,400
Copper	Cu	Enzyme cofactor	0.01	90
Boron	B	Bone structure	0.01	68
Cobalt	Co	Essence of B12 vitamin	0.01	20
Vanadium	V	Fat metabolism	0.01	20
Iodine	I	Thyroid hormone	0.01	15
Selenium	Se	Enzyme, antioxidant, immunity support	0.01	15
Manganese	Mn	Enzyme, antioxidant, immunity support	0.01	13
Molybdenum	Mo	Metallic enzymes	0.01	8
Chromium	Cr	Enzyme cofactor	0.01	6
		Glucose-tolerant facto		

91. Kevin Griffin, "The Elemental Composition of Life," www.ideo.columbia.edu/dees/ees/life/lectures/lect21.html.

THE PROGRAMMING IN GENES

From what thing did He create him? From a drop of sperm He created him and proportioned him. Then He eases the way for him. (Qur'an, 80:18-20)

The word "**qaddarahu**," translated as "**proportioned**" in the above verse, comes from the Arabic verb "qadare." It translates as "arranging, setting out, planning, programming, seeing the future, the writing of everything in destiny (by Allah)."



When the father's sperm cell fertilises the mother's egg, the parents' genes combine to determine all of the baby's physical characteristics. Each one of these thousands of genes has a specific function. It is the genes which determine the colour of the eyes and hair, height, facial features, skeletal shape and the countless details in the internal organs, brain, nerves and muscles. In addition to all the physical characteristics, thousands of different processes taking place in the cells and body-and indeed the control of the whole system-are recorded in the genes. For example, whether a person's blood pressure is generally high, low or normal depends on the information in his or her genes.

The first cell which forms when the sperm and the egg are joined also forms the first copy of the DNA molecule which will carry the code in every cell of the person's body, right up until death. DNA is a molecule of considerable size. It is carefully protected within the nucleus of the cell and this molecule is an information bank of the human body as it contains the genes we mentioned above. The first cell, the fertilised egg, then divides and multiplies in the light of the program recorded in the DNA. The tissues and organs begin to form: This is the beginning of a human being. The coordination of this complex structuring is brought about by the DNA molecule. This is a molecule consisting of atoms such as carbon, phosphorus, nitrogen, hydrogen and oxygen.

The information capacity recorded in DNA is of a size which astonishes scientists. There is enough information in a single human DNA molecule to fill a million encyclopaedia pages or 1,000 volumes. To put it another way, the nucleus of a cell contains information, equivalent to that in a 1 million-page encyclopaedia. It serves to control all the functions of the human body. To make a comparison, the 23-volume ***Encyclopaedia Britannica***, one of the largest encyclopaedias in the world, contains a total of 25,000 pages. Yet a single molecule in the nucleus of a cell, and which is so much smaller than that cell, contains a store of information 40 times larger than the world's largest encyclopaedias. That means that what we have here is a 1,000-volume encyclopaedia, the like of which exists nowhere else on Earth. This is a miracle of design and creation within our very own bodies, for which evolutionists and materialists have no answer.

Bearing in mind that the structure of DNA was unravelled by Francis Crick in 1953, it is truly amazing that the Qur'an pointed to the concept of "genetic planning" in an age when, as we have mentioned previously, mankind's knowledge was very limited. Geneticists were unable to discuss until the end of the 19th century and these remarkable facts act again as proofs that the Qur'an is the Word of Allah.

THE MENSTRUAL PERIOD

The menstrual period is when the unfertilised egg is expelled from the body. Since fertilisation has not taken place, the walls of the previously readied womb contract and the egg is expelled with the breaking of tiny blood vessels. Following that, the body will then begin preparations to repeat the whole process all over again.

All of these stages are repeated in all women over a specific period. Every month, new egg cells form, the same hormones are secreted-again and again at the same times. Thus the female body is prepared as if it will be fertilised. However, in the final stage, the absence or presence of the sperm changes the nature of the preparations in the body.

During the period in question, the changes in the empty space in the womb can only be identified by an anatomical or gynaecological examination. Yet these changes, only recently identified by scientists, are miraculously indicated in Surat ar-Ra'd:

Allah knows what every female bears and every shrinking of the womb and every swelling. Everything has its measure with Him. (Qur'an, 13:8)

At the beginning of the menstrual period, the mucous on the walls of the womb (the endometrium layer) is 0.5 mm thick. Under the effect of hormones secreted by the egg, this layer grows and reaches a thickness of 5-6 mm. This layer is then discarded in the absence of fertilisation. As we see from the above verse, this monthly increase and reduction in the walls of the womb is indicated in the Qur'an.

PREGNANCY AND BIRTH

Curse man for his ingratitude! From what thing did He create him? From a drop of sperm He created him and proportioned him. Then He eases the way for him. (Qur'an, 80:17-20)



The foetus is fully formed at the end of the sixth month. The womb then enters the incubation period. All the baby's bodily organs and systems develop fully during that time, and the womb accelerates this growth by providing nourishment for the foetus. This period continues until the baby emerges from the mother's womb.

The birth canal is normally very narrow and it is difficult for the foetus to pass through it. During birth, however, a number of physiological changes take place in the mother's body. These changes allow the foetus to move easily through the birth canal. Some of these changes include: the expansion of the joints in the pelvic bones in order to widen the birth canal, the relaxation of the muscles to further widen the canal and the lubrication of the canal with amniotic fluid.⁹² These pre-birth changes are described in one scientific source in these terms:

As birth approaches, the amniotic fluid embarks on those activities that will be necessary to facilitate that birth. This fluid comprises sacs, which will enlarge the mouth of the womb, thus allowing the womb to assume the dimensions to allow the baby to pass. These sacs also prevent the foetus from being crushed in the womb during birth. Furthermore, when the sacs burst and release their fluid at the commencement of birth, the path to be taken by the foetus is both lubricated and sterilised. In this way, birth takes place easier and in a manner naturally free of germs.⁹³

This series of occurrences is openly indicated in the verse of the Qur'an, "**Then He eases the way for him.**" (Qur'an, 80:20) However, it has been possible today to determine these physiological changes- which Allah informed us of 1,400 years ago-only with the use of a number of technological devices.

92. Kazi, 130 Evident Miracles in the Qur'an, 96-97. [↑](#)

93. Laurence Pernoud, J'attends un enfant (Paris : Pierre Horay : 1995), 138. [↑](#)

THE SEQUENCE IN DEVELOPMENT OF HUMAN ORGANS

It is He Who has created hearing, sight and minds for you. What little thanks you show!
(Qur'an, 23:78)

Allah brought you out of your mothers' wombs knowing nothing at all, and gave you hearing, sight and minds so that perhaps you would show thanks. (Qur'an, 16:78)

Say: "What do you think? If Allah took away your hearing and your sight and sealed up your hearts, what god is there, other than Allah, who could give them back to you?"... (Qur'an, 6:46)

We created man from a mingled drop to test him, and We made him hearing and seeing.
(Qur'an, 76:2)

The above verses refer to a number of senses given to human beings by Allah. These are always referred in a specific order in the Qur'an: hearing, sight, feeling and understanding.

In a paper published in the *Journal of the Islamic Medical Association*, Dr. Keith Moore states that during the development of the foetus, the eye begins to form after the inner ear has assumed its first form. He says the brain, the centre of feeling and understanding, begins its development after the ear and the eye.⁹⁴

The foetus' ears begin to develop as early as the twenty-second day of pregnancy and become fully functional in the fourth month. After that, the foetus can hear sounds in its mother's womb. For that reason, the sense of hearing forms before the other vital functions for a new-born baby. The order set out in the Qur'an is striking from that point of view. (See Harun Yahya, *The Miracle of the Creation of the Human Being*, Goodword Books, New Delhi, 2001)



The information only recently obtained about the formation of the baby's organs inside the mother's womb is in complete agreement with that revealed in the Qur'an.

94. Kazi, 130 Evident Miracles in the Qur'an, 78-79

THE FORMATION OF MILK

There is instruction for you in cattle. From the contents of their bellies, from between the dung and blood, We give you pure milk to drink, easy for drinkers to swallow. (Qur'an, 16:66)



Say: "Who provides for you from the heavens and earth?" Say: "Allah. It is certain that one or the other of us, either we or you, is following guidance or else clearly astray." (Qur'an, 34:24)

The basic materials which allow the nourishment of the body come about as a result of chemical changes in the digestive system. These digested substances then pass through the wall of the intestine into the blood stream. Due to the circulation of the blood, the nutriments reach the relevant organs.

Like the other bodily tissues, the milk glands are nourished by nutriments brought to them by the blood. The blood therefore plays a most important role in the collection of nutriments from foodstuffs. Milk is secreted by the milk glands after all these stages and its nutritional values are particularly high.

Human beings are unable to directly consume either the half-digested food in an animal's stomach or an animal's blood. Furthermore, the direct consumption of these or any of their compounds can lead to severe illness, and even death. Thanks to the exceedingly complex biological systems He has created, Allah provides clean and healthy food for human beings from these fluids.

This is because it forms as a result of digested food being carried by the blood. High-nutrition milk is thus produced from blood, which cannot be consumed directly, and semi-digested food.

The formation of milk is by itself an enormous creation miracle. And it is another miracle altogether that such detailed information about that formation should be contained in the Qur'an.

As we have seen, the information about the biological formation of milk in Surat an-Nahl 66, is in great accordance with the facts established by modern science. It is quite clear that such information, requiring detailed knowledge of mammals' digestive systems, could not have been known at the time when the Qur'an was revealed

MIRACULOUS MIXTURE: MOTHER'S MILK

And We have enjoined upon man goodness towards his parents: His mother bore him by bearing strain upon strain, and his weaning was in two years: "[Hence, O man,] be grateful to Me and to your parents; to Me is the eventual coming." (Qur'an, 31:14)



Mother's milk is a matchless compound created by Allah to meet the baby's nutritional needs and protect it against possible infections. The balance of the nutriment in mother's milk is at ideal levels and the milk is in the ideal form for the baby's immature body. At the same time, the mother's milk is also very rich in nutrients which accelerate the growth of brain cells and the development of the nervous system.⁹⁵ Artificial baby foods prepared with present-day technology cannot replace this miraculous food.

The list of advantages to the baby provided by mother's milk is being added to every day. Research has shown that babies who are fed mother's milk are particularly protected against infections concerning the respiratory and digestive systems. That is because the antibodies in mother's milk provide a direct defence against infection. Other anti-infection properties of mother's milk are that it provides a hospitable environment for "good" bacteria called "normal flora" thus constituting a barrier to harmful bacteria, viruses and parasites. Furthermore, it has also been established that there are factors in mother's milk which arrange the immune system against infectious diseases and allow it to function properly.⁹⁶

Since the mother's milk has been specially designed, it is the most easily digestible food for babies. Despite being nutritionally very rich, it is easily digested by the baby's sensitive digestive system. Since the baby thus expends less energy on digestion, it is able to use that energy for other bodily functions, growth and organ development.

The milk of mothers who have had premature babies contains higher levels of fat, protein, sodium, chloride and iron to meet the baby's needs. Indeed, it has been established that the functions of the eye develop better in premature babies fed on mother's milk and that they perform better in intelligence tests. In addition, they also have a great many other advantages.

One of the ways in which mother's milk is important to the development of the new-born baby is the fact that it contains omega-3 oil alpha linoleic acids. As well as being an important compound for the human brain and retina, it is also of great importance from the point of view of new-born babies. Omega-3 is of particular importance throughout pregnancy and the early stages of babyhood if the brain and nerves are to develop normally. Scientists particularly emphasise the importance of mother's milk as a natural and perfect store of omega-3.⁹⁷

Furthermore, research by Bristol University scientists revealed that among the long-term benefits of mother's milk are its positive effect on blood pressure, thanks to which the risk of heart attack is reduced. The research team concluded that the protective nature of mother's milk stems from its nutritional content. According to the results of the research, published in the medical journal **Circulation**, babies fed on mother's milk are less likely to develop heart disease. It has been revealed that the presence in mother's milk of long-chain polyunsaturated fatty acids-these prevent hardening of the arteries-along with the fact that babies fed on mother's milk consume less sodium-

this is closely linked to blood pressure-and do not, as a result, gain excessive amounts of weight are among the ways that mother's milk benefits the heart.⁹⁸

In addition, a team led by Dr. Lisa Martin, of the Cincinnati Children's Hospital Medical Centre in the USA, found high levels of the protein hormone known as adiponectin in mother's milk.⁹⁹ High blood levels of adiponectin are associated with a reduced risk of heart attack. Low levels of adiponectin are found in people who are obese and who are at increased risk of a heart attack. It was therefore established that the risk of obesity in babies fed on mother's milk declined in relation to this hormone. Furthermore, they also discovered the presence of another hormone called leptin in the mother's milk which has a central role in fat metabolism. Leptin is believed to be a signal to the brain that there is fat on the body. According to Dr. Martin's announcement, therefore, these hormones absorbed in babyhood through mother's milk reduce the risk of such illnesses as obesity, type 2 diabetes and insulin resistance, and coronary artery disease.¹⁰⁰

Facts about "The Freshest Food"

The facts about the mother's milk are not restricted to these. The contribution it makes to the baby's health alters according to the phases the baby undergoes and whichever foodstuff is required at a particular stage, the contents of the milk change to meet those very specific needs. Mother's milk, ready at all times and at the ideal temperature, plays a major role in brain development because of the sugar and fat it contains. In addition, elements such as calcium in it play a large role in the development of the baby's bones.

Although it is called milk, this miraculous compound actually consists mostly of water. This is a most important feature because in addition to food, babies also need liquid in the form of water. Full hygiene may not be established in water or foodstuffs other than mother's milk. Yet mother's milk-90% water no less-, meets the baby's water needs in the most hygienic manner.

Mother's Milk and Intelligence

Scientific research shows that the cognitive development in breast-fed babies is greater than that in other babies. A comparative analysis of breast-fed babies and formula-fed babies by James W. Anderson-an expert from the University of Kentucky-established that the IQs of babies fed on mother's milk were 5 points higher than those of other babies. As a result of this study, it was determined that intelligence is benefited by mother's milk for up to 6 months and that children who are breast-fed for less than 8 weeks show no IQ benefit.¹⁰¹

Does Mother's Milk Combat Cancer?

As a result of all the research performed, it is proven that mother's milk, on which hundreds of papers have been published, protects babies against cancer. This, despite the fact that the mechanism is not yet fully understood. When a protein from the mother's milk killed off tumour cells which had been grown in laboratories without damaging any healthy cells, researchers stated that a great potential has emerged. Catharina Svanborg, professor of clinical immunology at Lund University in Sweden, headed the research team that discovered these miraculous secrets of mother's milk.¹⁰² This team at Lund University have described the way that mother's milk provides protection against many forms of cancer as a miraculous discovery.



Initially, researchers treated intestinal mucous cells taken from new-born babies with mother's milk. They observed that the disorder caused by the bacterium *Pneumococcus* and known as pneumonia was efficiently halted by mother's milk. What is more, babies fed on mother's milk encounter far fewer hearing difficulties than those fed on formula and suffer far fewer respiratory infections. After a series of studies, it was shown that mother's milk also provides protection against cancer. After showing that the incidence of the lymph cancer observed in childhood was nine times greater in formula-fed children, they realised that the same results applied to other forms of cancer. According to the results, mother's milk accurately locates the cancer cells and later destroys them. It is a substance called alpha-lac (alphalactalbumin), present in large quantities in mother's milk, that locates and kills the

cancer cells. Alpha-lac is produced by a protein that assists in the manufacture of the sugar lactose in the milk.¹⁰³

This Matchless Blessing Is a Gift from Allah

Another miraculous feature of mother's milk is the fact that it is exceedingly beneficial for the baby to be fed with it for two years.¹⁰⁴ This important information, only recently discovered by science, was revealed by Allah fourteen centuries ago in the verse: **"Mothers should nurse their children for two full years-those who wish to complete the full term of nursing..."** (Qur'an, 2:233)

In the same way that the mother does not decide to produce milk, the most ideal source of nourishment for the helpless baby in need of feeding in her body, neither does she decide on the various nutritional levels within it. It is Almighty Allah, Who knows the needs of and displays mercy to every living thing, Who creates mother's milk for the baby in the mother's body.

95. "High-Risk Newborn—The Benefits of Mother's Own Milk," University of Utah Health Sciences Center, www.uuhsc.utah.edu/healthinfo/pediatric/Hrnewborn/bhrnb.htm. [↑](#)

96. Ibid. [↑](#)

97. C. Billeaud, et al., European Journal of Clinical Nutrition, 1997, vol. 51, 520-526. [↑](#)

98. "Breast milk 'does cut heart risk'," 1 March 2004, <http://news.bbc.co.uk/2/hi/health/3523143.stm>. [↑](#)

99. "Breast milk helps reduce obesity," 2 May 2004, <http://news.bbc.co.uk/2/hi/health/3673149.stm>. [↑](#)

100. Ibid. [↑](#)

101. Tim Whitmire, "IQ Gain from Breastfeeding," <http://abcnews.go.com/sections/living/DailyNews/breastfeeding990923.html>. [↑](#)

102. "Breakthrough in Cancer Research," www.medicvalley.com/news/Article.asp?NewsID=635. [↑](#)

103. Peter Radetsky, "Human Breast Milk Kills Cancer Cells," Discover 20, No. 06, June 1999. [↑](#)

104. Rex D. Russell, "Design in Infant Nutrition," www.icr.org/pubs/imp/imp-259.htm. [↑](#)

THE IDENTITY IN THE FINGERPRINT

While it is stated in the Qur'an that it is easy for Allah to bring man back to life after death, peoples' fingerprints are particularly emphasized:

Yes, We are able to put together in perfect order the very tips of his fingers. (Qur'an, 75:4)

The emphasis on fingerprints has a very special meaning. This is because shapes and details on everyone's fingerprint are unique to each individual. Every person who is alive or who has ever lived in this world has a set of unique fingerprints. Furthermore, even identical twins having the very same DNA sequence have their own set of fingerprints.¹⁰⁵

Fingerprints attain their final shape before birth and remain the same for a lifetime unless a permanent scar appears. That is why fingerprints are accepted as a very important proof of identity, exclusive to their owner. The science of fingerprints has been used as a non-erring identity determination method.

However, what is important is that this feature of fingerprints was only discovered in the late 19th century. Before then, people regarded fingerprints as ordinary curves without any specific importance or meaning. However in the Qur'an, Allah points to the fingertips, which did not attract anyone's attention at that time, and calls our attention to their importance. This importance has only been fully understood in our day.



Everyone, including identical twins, has a unique fingerprint. In other words, people's identities are coded at their fingertips. This coding system may also be compared to the barcode system that is used today.



The validity of the technique to establish identity by means of fingerprints (AFS) has been confirmed by various police organisations over the last 25 years and is a legally approved method. No technology of identity verification in our time gives such effective results as fingerprints. Using fingerprints to establish identity has been used in legal processes for the last 100 years and possesses international acceptance. "What is a Fingerprint?," (www.ridgesandfurrows.homestead.com/fingerprint.html.)



In his book *Fingerprint Techniques* A.A. Moenssens analyses the way that each individual has a unique set of fingerprints:

... no two fingerprints from different digits have ever been found to match exactly. Andre A. Moenssens, "Is Fingerprint Identification a 'Science'?", (www.forensic-evidence.com/site/ID/ID00004_2.html#ID1.)

105. www.ridgesandfurrows.homestead.com/fingerprint.html.

THE FEMALE HONEY BEE

Your Lord revealed to the bees: "*Build dwellings in the mountains and the trees, and also in the structures which men erect. Then eat from every kind of fruit and travel the paths of your Lord, which have been made easy for you to follow.*" From inside them comes a drink of varying colours, containing healing for mankind. There is certainly a Sign in that for people who reflect. (Qur'an, 16:68-69)

In the honey bee colonies where each of the many bees is assigned a specific task, the only exception is the male honey bee. The males do not contribute to the defence of the hive or its cleaning, to gathering food, or making of the honeycomb and honey. The only function of the male bees in the hive is to inseminate the queen bee.¹⁰⁶ Apart from reproductive organs, the males possess almost none of the features possessed by the other bees and it is therefore impossible for them to do anything but fertilise the queen.



The worker bees carry the entire load of the colony. Although they are females like the queen, their ovaries have no maturity. This renders them sterile. They have several duties: cleaning the hive, maintaining the larvae and the young, feeding the queen bee and the males, producing honey, constructing the honeycomb and repairing it, ventilating the hive and safeguarding it, gathering supplies like nectar, pollen, water and resin, and storing these in the hive.

In Arabic, there are two different usages of verbs. By means of the usage, it is possible to determine whether the subject is a female or a male. As a matter of fact, the verbs (*italic words*) used for the honey bee in the verses are used in the format of the verb for females. Through this, the Qur'an indicates that the honey bees that work in the making of the honey are females.¹⁰⁷

We should not forget that it is impossible for this fact to have been known about the honey bees in the time of the Prophet Muhammad (saas). Yet, Allah has pointed at this fact and shown us yet another miracle of the Qur'an.

106. Hayvanlar Ansiklopedisi-Böcekler (Encyclopedia of Animals—Insects) (Istanbul: C.B.P.C. Publishing Ltd./Phoesbus Publishing Company: 1979), 97. [↑](#)

107. Kazi, 130 Evident Miracles in the Qur'an, 68-69. [↑](#)

THE MIRACLE OF HONEY

Your Lord revealed to the bees: "Build dwellings in the mountains and the trees, and also in the structures which men erect. Then eat from every kind of fruit and travel the paths of your Lord, which have been made easy for you to follow." *From inside them comes a drink of varying colours, containing healing for mankind.* There is certainly a Sign in that for people who reflect. (Qur'an, 16:69)

Honey is a "healing for men" as stated in the verses above. Nowadays, apiculture and bee products have opened a new branch of research in scientifically advanced parts of the world. Other benefits of honey may be described as below:

Easily digested: Because sugar molecules in honey can convert into other sugars (e.g. fructose to glucose), honey is easily digested by the most sensitive stomachs, despite its high acid content. It helps kidneys and intestines to function better.

Rapidly diffuses through the blood; is a quick energy source: When accompanied by mild water, honey diffuses into the bloodstream in seven minutes. Its free sugar molecules make the brain function better since the brain is the largest consumer of sugar. Honey is a natural composition of sugars like glucose and fructose. According to recent research, this unique mixture of sugars is the most effective means to remove fatigue and increase athletic performance.



The antibacterial and anti-inflammatory properties of honey were revealed as a result of clinical observations and research. Honey is exceedingly effective in painlessly cleaning up infection and dead cells in these regions and in the development of new tissues. The use of honey as a medicine is mentioned in the most ancient writings. In the present day, doctors and scientists are rediscovering the effectiveness of honey in the treatment of wounds.

Dr. Peter Molan, a leading researcher into honey for the last 20 years and a professor of biochemistry at New Zealand's University of Waikato, says this about the antimicrobial properties of honey:

Randomized trials have shown that honey is more effective in controlling infection in burn wounds than silver sulphadiazine, the antibacterial ointment most widely used on burns in hospitals. ("Honey Against Infected Skin Lesions," www.apitherapy.com/honeysk.htm.)

Supports blood formation: Honey provides an important part of the energy needed by the body for blood formation. In addition, it helps in cleansing the blood. It has some positive effects in regulating and facilitating blood circulation. It also functions as a protection against capillary problems and arteriosclerosis.

Does not accommodate bacteria: This bactericide (bacteria-killing) property of honey is named "the inhibition effect." There are various reasons of this anti-microbial property of the honey. Some examples are: the high sugar content that limit the amount of water microorganisms need for growth, its high acidity (low pH) and composition which deprive bacteria from nitrogen necessary for reproduction. The existence of hydrogen peroxide as well as antioxidants in the honey prevents bacteria growth.

Antioxidant: Everyone who wants to live a healthier life should consume antioxidants. Those are the components in cells that get rid of harmful byproducts of normal metabolic functions. These elements inhibit destructive chemical reactions that cause spoilage of food and many chronic illnesses. Researchers believe food products rich in antioxidants may prevent heart problems and cancer. Strong antioxidants are present in honey content: *Pinocembrin*, *pinobaxin*, *chrisin* and *galagin*. *Pinocembrin* is an antioxidant that merely exists in the honey.¹⁰⁸

Vitamin and mineral depot: Honey is composed of sugars like glucose and fructose and minerals like magnesium, potassium, calcium, sodium chlorine, sulphur, iron and phosphate. It contains vitamins B1, B2, C, B6, B5 and B3 all of which change according to the qualities of the nectar and pollen. Besides the above, copper, iodine, and zinc are also present, albeit in small quantities.

Honey is used in healing wounds:

- When used in treatment of wounds, thanks to its ability to absorb moisture from the air, honey facilitates healing process and prevents scarring. This is because honey stimulates the growth of epithelial cells that form the new skin cover over a healed wound. In this way, even in case of large wounds, honey may eliminate the need for tissue transplantation.
- Honey stimulates the regrowth of tissue involved in the healing process. It stimulates the formation of new blood capillaries and the growth of fibroblasts that replace the connective tissue of the deeper layer of the skin and produce the collagen fibres that give strength to the repair.
- Honey has an anti-inflammatory action, which reduces the swelling around a wound. This improves circulation and thus hastens the healing process. It also reduces pain.
- Honey does not stick to the underlying wound tissues, so there is no tearing away of newly formed tissue, and no pain, when dressings are changed.
- Thanks to its aforementioned antimicrobial property, honey provides a protective barrier to prevent wounds becoming infected. It also rapidly clears any existing infection from wounds. It is fully effective, even with antibiotic-resistant strains of bacteria. Unlike antiseptics and antibiotics, there is no impairment of the healing process through adverse effects on wound tissues.¹⁰⁹

It can easily be seen from this information that honey has great "healing" properties. This is undoubtedly one of the miracles of the Qur'an Allah, Who is Exalted in Power, has revealed.

Nutritional Values	Average amount in a portion	Average amount in 100 g
Water	3.6 gr	17.1 gr
Total carbohydrates	17.3 gr	82.4 gr
Fructose	8.1 gr	38.5 gr
Glucose	6.5 gr	31.0 gr
Maltose	1.5 gr	7.2 gr
Sucrose	0.3 gr	1.5 gr
Nutritional Contents		
Total calories (kilocalories)	64	304
Total calories (kilocalories) (as fat)	0	0
Total fat	0	0
Saturated fat	0	0
Cholesterol	0	0
Sodium	0.6 mg	2.85 mg
Total carbohydrate	17 gr	81 gr
Sugar	16 gr	76 gr
Diet fibres	0	0
Protein	0.15 mg	0.7 mg

Vitamins		
B1 (Thiamine)	< 0.002 mg	< 0.01 mg
B2 (Riboflavin)	< 0.06 mg	< 0.3 mg
Nicotinic acid	< 0.06 mg	< 0.3 mg
Pantothenic acid	< 0.05 mg	< 0.25 mg
Vitamin B6	< 0.005 mg	< 0.02 mg
Folic acid	< 0.002 mg	< 0.01 mg
Vitamin C	0.1 mg	< 0.5 mg
Minerals		
Calcium	1.0 mg	4.8 mg
Iron	0.05 mg	0.25 mg
Zinc	0.03 mg	0.15 mg
Potassium	11.0 mg	50.0 mg
Phosphorus	1.0 mg	5.0 mg
Magnesium	0.4 mg	2.0 mg
Selenium	0.002 mg	0.01 mg
Copper	0.01 mg	0.05 mg
Chromium	0.005 mg	0.02 mg
Manganese	0.03 mg	0.15 mg
ASH	0.04 mg	0.2 gr

The "First World Wound Healing Congress," held in Melbourne on September 10-13, 2000, discussed the use of honey in wound treatment. The comments made during the congress were along these lines:

Many natural antibacterial substances are being evaluated to find a treatment for wounds infected with bacteria with multiple resistance to antibiotics, the "superbugs", as this becomes a major clinical problem. But most of these natural substances have no proven effectiveness on infected wounds, nor is it known if they have any adverse effects on wound tissues. Honey is different, as it has an excellent "track record" over 4,000 years of usage as a wound dressing... Honey has a potent antibacterial activity and is very effective in clearing infection in wounds and protecting wounds from becoming infected.
(bio.waikato.ac.nz/pdfs/honeyresearch/potential.pdf)

108. "Honey A Source of Antioxidants," Journal of Apicultural Research, 1998, 37:221-225, www.nutritionfarm.com/health_news/1998/antioxidants4.htm; Janet Raloff, "The Color of Honey," www.sciencenews.org/sn_arc98/9_12_98/Bob1.htm. [↑](#)

109. "Honey As Medicine—Australia Produces A World's First!," San Diego Earth Times, January 2000, www.sdearthtimes.com/et0100/et0100s17.html. [↑](#)

THE DATE AND ITS USES AS DESCRIBED IN THE QUR'AN

In a number of Qur'anic verses, the humble date is honoured as one of the blessings of Paradise. (Qur'an, 55:68) When this fruit is examined, it can be seen to have a great many important features. One of the oldest known species of plant, the date is today a food of preference not only for its delicious taste but also for its nutritious properties. New benefits imparted by the date are being discovered every day and has come to be used as a medicine as well as a food. These features of the date are noted in Surah Maryam:

The pains of labour drove her to the trunk of a date-palm. She [Maryam] said, "Oh if only I had died before this time and was something discarded and forgotten!" A voice called out to her from under her, "Do not grieve! Your Lord has placed a small stream at your feet. Shake the trunk of the palm towards you and fresh, ripe dates will drop down onto you. Eat and drink and delight your eyes..." (Qur'an, 19:23-26)



There is considerable wisdom in the way that Allah recommends Maryam to eat this fruit. The date is an excellent choice of food for the pregnant women and for those who have just given birth. This is a

widely accepted scientific fact. Maryam was inspired to understand this point, in order to make her own labour easier. The date has one of the highest sugar levels, 60-65%, of all fruits. Doctors recommend that pregnant women be given foods containing fruit sugar on the day they give birth. The aim behind this is to energise and revitalise the mother's weakened body and at the same time to stimulate the milk hormones and increase the levels of mother's milk essential to the new-born baby.

In addition, loss of blood during birth leads to a fall in body sugar levels. Dates are important from the point of view of enabling sugar to enter the body and prevent blood pressure from dropping. Their high calorific value strengthens people weakened by illness or suffering from extreme fatigue.

These facts reveal the wisdom in the way that Allah recommended Maryam to eat dates, designed to energise and invigorate the woman and ensure the emergence of milk, the only food for a baby. For example, the date contains more than ten elements of vital importance if the body is to remain healthy and energetic. Modern-day scientists state that human beings can actually live for years on nothing more than dates and water.¹¹⁰ V. H. W. Dowson, a recognised expert in this field, says that one grain of date and a glass of milk are enough to meet all of a person's daily nutritional requirements.¹¹¹

The substance oxytocin, which is present in the date, is used in modern medicine to facilitate birth. In fact, oxytocin means "rapid birth." It is also known to increase levels of mother's milk after birth.¹¹²

Oxytocin is actually a hormone released by the pituitary gland which stimulates contractions of the womb during childbirth. All the pre-birth preparations in the body take place thanks to this hormone. The effects of the hormone can be seen in the muscles that form the mother's womb and in cells in the muscular structure that enables the secretion of mother's milk. The effective contraction of the womb is essential if birth is to take place. Oxytocin enables the muscles that comprise the womb to contract in a very powerful manner. Moreover, oxytocin also initiates the secretion of mother's milk. This feature of the date alone-the way it contains oxytocin-is important evidence that the Qur'an is the revelation of Allah. The medical identification of the benefits of the date only became possible in recent times. Yet it was set out fourteen centuries ago in the Qur'an that Allah revealed to Maryam that she should eat dates.



Dates also contain a form of sugar that gives the body high levels of mobility and heat energy and which can be easily broken down in the body. Furthermore, this sugar is not glucose, which rapidly raises the level of blood sugar but the fruit sugar fructose. A rapid rise in blood sugar levels in diabetics in particular has a damaging effect on a great many organs and systems, especially the eyes, kidneys, heart and circulatory system and nervous system. High blood sugar is one of the main causes of disorders as serious as loss of sight, heart attacks and kidney insufficiency.

Dates contain a great many vitamins and minerals. They are very rich in fibre, fat and proteins. They also contain sodium, potassium, calcium, magnesium, iron, sulphur, phosphorus and chlorine, as well as vitamins A, beta-carotene, B1, B2, B3 and B6. Some of the benefits of the vitamins and minerals in dates to the normal human body and especially during pregnancy can be summarised as follows:

- The nutritional value of dates stems from the appropriate mineral balance within them. The date also contains folic acid, a B vitamin of great importance to pregnant women. **Folic acid (B9)** is a vitamin which serves important functions in the construction of new blood cells and of amino acids, the body's building blocks, and in cell renewal. The need for folic acid thus rises significantly during pregnancy and the daily requirement doubles. When folic acid levels are insufficient, red blood cells that are larger than normal but with lower functionality emerge, along with the symptoms of anaemia, appear. Folic acid plays a particularly important role in cell division and in the formation of the genetic structure of the cell and is the only substance daily requirements of which double during pregnancy. The date is exceedingly rich in folic acid.
- On the other hand, the long-term nausea and physical reactions that appear during pregnancy do so because of a lack of **potassium**. Levels therefore need to be reinforced. In the same way that the large quantities of potassium in dates are of great importance in this regard, they are also important in regulating the water balance in the body. Moreover, by helping oxygen to reach the brain potassium enables one to think clearly. In addition, it provides the appropriate

alkaloidal features for body fluids and stimulates the kidneys to expel toxic bodily wastes. It helps bring down high blood pressure and the formation of healthy skin.¹¹³

- The **iron** contained in dates controls the synthesis of haemoglobin in the red blood cells and ensures an appropriate level of red cells in the blood. This is of vital importance in preventing anaemia during pregnancy and the development of the baby. Red blood cells play a role in keeping cells alive by carrying oxygen and carbon dioxide in the blood. Due to dates' high iron levels, a human being can meet his or her iron requirements by eating just 15 dates a day and will thus be protected from disorders arising from iron deficiency.
- The **calcium** and **phosphate** in dates are important elements for skeletal growth and balancing the body's bone structure. The high levels of **phosphorus** and **calcium** in dates protect the body against bone weakness and help reduce such disorders.
- Scientists also emphasise the way in which dates reduce stress and tension. Research by Berkeley University experts has revealed that dates contain high levels of **vitamin B6**, which strengthens the nerves, and **magnesium**, which is very important for the kidneys. A person can meet his magnesium requirement by eating just 2-3 grains of date a day.¹¹⁴
- The **vitamin B1** in dates facilitates the health of the nervous system, assists the transformation of the carbohydrates in the body into energy and the use of protein and fats to meet the body's needs. **Vitamin B2** assists in the burning of protein, carbohydrates and fats for the provision of bodily energy and cell renewal.
- The body's **vitamin A** requirement rises during pregnancy. Thanks to the vitamin A it contains, the date improves vision and bodily resistance and strengthens the teeth and bones. Dates are also especially rich in **beta-carotene**.¹¹⁵ Beta-carotene helps prevent cancer by controlling molecules that attack the cells.

In addition, unlike dates, other fruits are generally lacking in **protein**.¹¹⁶ Thanks to this feature, dates enable the body to protect itself against illness and infection, to renew cells and ensure fluid balance. Meat is also a useful foodstuff but maybe not as much as the date, which is a fresh fruit, especially at such a time. Indeed, excessive consumption of meat during pregnancy can actually lead to toxicity in the body. It is much better for pregnant women to choose fruit and vegetables, which are light and easily digested.

All these facts about dates reveal Allah's infinite knowledge and compassion for human beings. As we have seen, the benefits of the date, especially during pregnancy and only recently established by modern medical science, were indicated in the Qur'an many years ago.

110. www.geocities.com/SoHo/Easel/3809/hurma.htm. 

111. "Date and Health," www.sgp-dates.com/date.htm. 

112. <http://198.65.147.194/English/Science/2000/7/article5.shtml>; www.people.virginia.edu/~rjh9u/oxytocin.html; and <http://eilat.sci.brooklyn.cuny.edu/newnyc/DRUGS/OXYTOCIN.HTM#supplied>. 

113. The Independent Newspaper, 9 June 1995. 

114. "Date and Health," www.sgp-dates.com/date.htm. 

115. www.telmedpak.com/agricultures.asp?a=agriculture&b=date_palm. 

116. Ibid. 

THE FIG: A FRUIT WHOSE PERFECTION HAS ONLY RECENTLY BEEN REVEALED

[I swear] by the fig and the olive. (Qur'an, 95:1)

The reference to the fig in the first verse of Surat at-Tin is a most wise one in terms of the benefits imparted by this fruit.

The Benefits of the Fig for Human Beings

Figs have a higher fibre level than any other fruit or vegetable. One single dried fig provides two grams of fibre: 20% of the daily recommended intake. Research over the last fifteen years or so has revealed that the fibre in plant foods is very



important for the regular functioning of the digestive system. It is known that fibre in foods assists the digestive system and also helps reduce the risk of some forms of cancer. Nutritionists describe eating figs, which are **rich in fibre**, as an ideal way of increasing one's fibre intake.

Fibrous foodstuffs are divided into two types: soluble and insoluble. Foods rich in insoluble fibre facilitate the passage of substances to be expelled from the body through the intestine by adding water to them. They thus accelerate the digestive system and ensure its regular functioning. It has also been established that foods containing insoluble fibre have a protective effect against colon cancer. Foods rich in soluble fibre, on the other hand, have been shown to reduce cholesterol levels in the blood by more than 20%. These are therefore of the greatest importance in reducing the risk of heart attack. Excessive levels of cholesterol in the blood collect in the arteries, hardening and narrowing them. Depending on which organ's blood vessels the cholesterol accumulates in, disorders connected to that organ arise. For example, if cholesterol accumulates in the arteries that feed the heart, problems such as heart attacks result. Accumulations of cholesterol in the kidney veins can lead to high blood pressure and kidney deficiency. Furthermore, the intake of soluble fibre is important in terms of regulating blood sugar by emptying the stomach because sudden changes in blood sugar can lead to life-threatening disorders. Indeed, societies with fibre-rich diets have been shown to have far lower incidences of illnesses such as cancer and heart disease.¹¹⁷

It is also another major health advantage for soluble and insoluble fibres to be present at one and the same time. It has been shown that when both forms are present together, they are much more effective in preventing cancer than when they are on their own. The presence of both forms of fibre, soluble and insoluble, in the fig makes it a most important foodstuff in this regard.¹¹⁸

Dr. Oliver Alabaster, Director of the Institute for Disease Prevention at the George Washington University Medical Centre, refers to figs in these terms:

... [H]ere is an opportunity to add a really healthy, high fiber food to your diet. Choosing figs and other high fiber foods more frequently means that you'll naturally choose potentially harmful foods less frequently-and this is great for your lifelong health.¹¹⁹

According to the California Fig Advisory Board, it is believed that the **antioxidants** in fruit and vegetables protect against a number of diseases. Antioxidants neutralise harmful substances (free radicals) that arise as a result of chemical reactions in the body or else are taken in from the outside and thus prevent the destruction of cells. In one study performed by the University of Scranton, it was determined that dried figs had a much higher level of the phenol makeup, which is rich in antioxidants, than other fruits. Phenol is used as an antiseptic to kill micro-organisms. The level of phenol in figs is much higher than that in other fruits and vegetables.¹²⁰

Another study, by Rutgers University in New Jersey, revealed that due to the essential fatty acids **omega-3** and **omega-6** and **phytosterol** contained in dried figs, they can play a considerable part in reducing cholesterol.¹²¹ It is known that omega-3 and omega-6 cannot be manufactured in the body and need to be absorbed with food. Furthermore, these fatty acids are indispensable to the proper functioning of the heart, brain and nervous system. Phytosterol permits the cholesterol in animal products, which has the potential to harden the heart's arteries, to be expelled from the body without entering the blood stream.

Despite being one of the oldest fruits known to man, the fig-described as "nature's most nearly perfect fruit" by the California Fig Advisory Board ¹²²-has been rediscovered by food producers. The nutritional value of this fruit and its health benefits have led to its acquiring a whole new importance.

The fig can constitute a part of just about any special diet. Since figs do not naturally contain fat, sodium or cholesterol but have high levels of fibre, they are an ideal food for those trying to lose weight. At the same time, figs have higher mineral contents than any other known fruit. Forty grams of figs contains 244 mg of potassium (7% of the daily requirement), 53 mg of calcium (6% of the daily requirement) and 1.2 mg of iron (6% of the daily requirement).¹²³ The **calcium** level in figs is very high: The fig ranks second after the orange in terms of calcium content. A crate of dried figs provides the same level of calcium as a crate of milk.

Figs are also thought of as a medicine which gives strength and energy to long-term patients as they seek to recover. They eliminate physical and mental difficulties and give the body strength and energy.

The most important nutritional component of figs is sugar, which comprises 51-74% of all fruits. The sugar level in figs is one of the highest. Figs are also recommended in the treatment of asthma, coughs and chills.

The benefits we have restricted ourselves to mentioning here are an indication of the compassion Allah feels for human beings. Our Lord provides the substances required by human beings in this fruit, which is so pleasant to eat, already packaged and at the ideal levels for human health. The way that this special blessing from Allah is mentioned in the Qur'an may indicate the importance of the fig for human beings. (Allah knows best.) From the point of view of human health, the nutritional value of the fig was only established with the advance of medicine and technology. This is another indication that the Qur'an is indisputably the Word of Allah, the Omniscient.

Fresh Fig Nutritional Value (100 grams)		Dried Fig Nutritional Value (100 grams)	
Calories (kcal)	74	Calories (kcal)	249
Fibre (g)	3	Fibre (g)	10
Fat (g)	0	Fat (g)	1
Protein (g)	1	Protein (g)	3
Sugar (g)	16	Sugar (g)	48
Vitamin A (IU)	142	Vitamin A (IU)	10
Vitamin C (mg)	2	Vitamin C (mg)	1.2
Vitamin B1	0.1	Vitamin B1	0.1
Vitamin B2	0.1	Vitamin B2	0.1
Vitamin B6	0.1	Vitamin B6	0.1
Sodium	1	Sodium	10
Potassium	232	Potassium	680
Calcium	35	Calcium	162
Phosphorus	232	Phosphorus	67
Magnesium	17	Magnesium	68
Iron	0.4	Iron	3.07
Manganese	0.1	Manganese	0.8
Copper	0.1	Copper	0.3
Selenium	0.2	Selenium	0.6
Zinc	0.2	Zinc	0.5

117. www.californiafigs.com/nutrition/. ↑

118. Ibid. ↑

119. Ibid. ↑

120. Dr. Joe A. Vinson, "The Functional Food Properties of Figs," Cereal Foods World, February 1999, vol. 44, no. 2. ↑

121. Ibid. ↑

122. www.californiafigs.com/industry/page2.html. ↑

123. Ibid. ↑

FISH: A VALUABLE SOURCE OF NUTRITION

Anything you catch in the sea is lawful for you, and all food from it, for your enjoyment and that of travellers... (Qur'an, 5:96)

The fact the average age of people developing and dying from heart disease is constantly decreasing has considerably increased the importance attached to coronary health. Although a great many advances have been registered in the treatment of heart disease, experts in the field basically

recommend that careful precautions be taken before such diseases ever arise. Experts also recommend one important foodstuff for the healthy functioning of the heart and the prevention of disease: **fish**.

The reason why fish is such an important source of nutrition is that it both provides substances necessary for the human body and also reduces the risk of various diseases. For example, it has been revealed that when fish-which acts as a shield in terms of health with the omega-3 acid it contains-is consumed on a regular basis, it reduces the risk of heart disease and strengthens the immune system.

The fact that fish, the health benefits of which have only newly been scientifically registered, is an important nutritional source is revealed in the Qur'an. Almighty Allah makes the following references to seafood in the Qur'an: "**It is He Who made the sea subservient to you so that you can eat fresh flesh from it...**" (Qur'an, 16:14), "**Anything you catch in the sea is lawful for you, and all food from it, for your enjoyment and that of travellers...**" (Qur'an, 5:96) Furthermore, particular attention is drawn to fish in Surat al-Kahf, in which it is revealed that the Prophet Musa (as) set out on a long journey with his servant and that they took fish along with them to eat:

But when they reached their meeting-place, they forgot their fish which quickly burrowed its way into the sea. When they had gone a distance further on, he said to his servant, "*Bring us our morning meal. Truly this journey of ours has made us tired.*" He said, "*Do you see what has happened? When we went to find shelter at the rock, I forgot the fish...*" (Qur'an, 18:61-63)

It is noteworthy that in Surat al-Kahf fish should be specially chosen as a foodstuff after a long, tiring journey. Therefore, one of the pieces of wisdom in this tale may well be an indication of the nutritional benefits of fish. (Allah knows best.)

In fact, when we examine the nutritional properties of fish, we encounter some very striking facts. Fish, given to us as a blessing by our Lord, are a perfect food, particularly in terms of protein, vitamin D and trace elements (certain elements found in minimal quantities in the body but which are still of great importance to it). Due to the minerals they contain-such as phosphorus, sulphur and vanadium-fish encourages growth and enables tissues to recover. Fish meat also assists in the formation of healthy teeth and gums, benefits the complexion, makes the hair healthier and contributes to the fight against bacterial infection. It also plays an important role in the prevention of heart attacks as it beautifully regulates the level of cholesterol in the blood. It helps the body to break down and use starch and fats, making it stronger and more energetic. On the other hand, it also influences the functioning of mental activities. In the event that the vitamin D and other minerals contained in fish are not consumed in sufficient quantities, disorders such as rickets (bone weakness), gum disease, goitre and hyperthyroid may all arise.¹²⁴

In addition, modern science has also discovered that the omega-3 fatty acids in fish also occupy an important place in human health. These fats have even been described as essential fatty acids.

The Benefits of Omega-3 in Fish Oil

There are two kinds of unsaturated fatty acid in fish oil which are particularly important for our health: **EPA (eicosapentaenoic acid)** and **DHA (docosahexaenoic acid)**. EPA and DHA are known as polyunsaturated fats and contain the important omega-3 fatty acids. Since the fatty acids omega-3 and omega-6 are not manufactured in the human body, they need to be taken in from the outside.

There is a large body of evidence relating to the benefits to human health of fish oil, the actual benefit stemming from its omega-3 fatty acid content. Despite being present in vegetable oils, these omega-3 fatty acids are less effective in relation to human health. However, marine plankton is very effective at turning omega-3 into EPA and DHA. When fish eat plankton, their constitution becomes much richer in EPA and DHA. That, in turn, makes fish one of the richest sources of these vitally important fatty acids.

Vital Benefits of the Fatty Acids Found in Fish

One of the main features of the fatty acids in fish is the contribution they make to the body's energy production. These fatty acids carry out electron transfers by attaching themselves to oxygen in the body and permit energy to be produced for various chemical processes within it. There is therefore considerable evidence that a diet rich in fish oil helps combat fatigue and increases mental and physical

capacity. Omega-3 increases the individual's powers of concentration as much as it does his or her energy levels. There is a scientific foundation to the old saying "fish is good for the brain": The main compound in brain fat is DHA, which contains omega-3 fatty acids.

The Importance of Fish for a Healthy Heart and Arteries

The omega-3 fatty acid in fish is acknowledged to protect against cardiovascular disease by reducing blood pressure and the cholesterol and triglyceride in the blood.¹²⁵ Triglyceride is a form of fat and resembles LDL (bad cholesterol) which is high in fat and low in protein content. A raised triglyceride level, especially together with high cholesterol, increases the risk of heart disease. In addition, fish oils reduce life-threatening post-heart attack abnormal heart rhythms.

In one study by the American Medical Association, it was observed that heart attack levels in women eating five portions of fish a week fell by one-third. This is thought to stem from the omega-3 fatty acids in fish oil causing less blood clotting. The normal speed of blood in our veins is 60 kmph (37.3 mph) and it is of vital importance for the blood to be of the right viscosity and for the density, quantity and speed to be at normal levels. The worst danger for our blood-apart from normal conditions of bleeding-is for it to clot and lose the ability to flow properly. Fish oils are also effective in reducing blood clotting by preventing the thrombocytes in the blood (blood platelets that concentrate the blood in the event of bleeding) from adhering to one another. Otherwise, blood thickening can lead to narrowing of the arteries. In turn, this can lead to many organs in the body-especially the heart, brain, eyes and kidneys-receiving an inadequate blood supply, function deceleration and eventually, loss of function. For example, when an artery is totally blocked on account of clotting this can lead to heart attack, paralysis or other disorders, depending on the location of the artery.

Omega-3 fatty acids also play an important role in the production of the molecule haemoglobin, that carries oxygen in the red blood cells, and in controlling the nutrients passing through the cell membrane. They also prevent the damaging effects of fats harmful to the body.

Importance for the Development of New Born Babies

Being an important component of the brain and eye, omega-3 fatty acids have been the subject of research, especially over the last 10 years, in connection with the needs of new born babies. There is a considerable body of evidence relating to the importance of omega-3 to the development of the foetus in the mother's womb and of the new-born baby. Omega-3 is of the greatest importance for the proper development of the brain and nerves throughout pregnancy and in early babyhood. Scientists emphasise the importance of mother's milk since it is a natural and perfect store of omega-3.



Benefits for Joint Health

The major risk in rheumatoid arthritis (a painful joint condition linked to rheumatism) is that of wearing of the joints, leading to irreparable damage. It has been proven that a diet rich in omega-3 fatty acids prevents arthritis and reduces discomfort in swollen and sensitive joints.

Benefits Regarding the Healthy Functioning of the Brain and Nervous System

A large number of studies have revealed the effects of omega-3 fatty acids on the healthy functioning of the brain and nerves. In addition, it has been shown that fish oil reinforcement can reduce symptoms of depression and schizophrenia and prevent Alzheimer's disease (a brain disease which causes loss of memory and hinders day-to-day activities). For example, reductions in such problems as anxiety, stress and sleeping difficulties have been observed in individuals suffering from depression who took 1 gram of omega-3 fatty acid over a period of 12 weeks.¹²⁶

Benefits against Inflammatory Disorders and Strengthening of the Immune System

At the same time, omega-3 fatty acids have an anti-inflammatory (infection preventing) function. Omega-3 can therefore be employed in the following diseases:

- Rheumatoid arthritis (joint infection linked to rheumatism),
- Osteoarthritis (a form of arthritis gradually degenerating the functions of joints)
- Ulcerative colitis (ulcers linked to the inflammation of the colon), and
- Lupus (a disease which causes patches on the skin).
- It also protects myelin (the material surrounding nerve cells). It is therefore used in the treatment of
- Glaucoma (an eye disorder marked by abnormally high pressure within the eyeball that may even lead to blindness)
- Multiple sclerosis (a serious progressive disease resulting from tissue hardening in the brain and spinal cord),
- Osteoporosis (a disease leading to structural weakening in the bone structure)
- Diabetes patients.
- In addition, it is also reported to be useful in the treatment of
- Migraine patients,
- Anorexia (a possibly fatal eating disorder)
- Burns
- Problems concerning skin health.

There is also wide-ranging evidence that societies such as the Greenland Eskimos and Japanese, who eat a lot of fish, rich in omega-3 fatty acid, have a much lower incidence of heart and artery disease, asthma and psoriasis. Fish is therefore recommended as a form of treatment and is particularly recommended by nutritionists on account of its proven benefits for coronary health.

Additional benefits to those outlined above are emerging every day. Moreover, it has only been possible to reveal the health benefits of fish by a great many scientists working in well-equipped research laboratories. The fact that such a valuable source of nutrition is indicated in the Qur'an, and especially that it is described as a fatigue eliminator in Surat al-Kahf, is nothing short of awe-inspiring. All the benefits provided by fish are a great blessing given us by our Lord. As with all foods, it is Allah, the Lord of the Worlds, Who has created the superior structure in fish for our benefit.

124. Bilim ve Teknik Dergisi (Journal of Science and Technology), September 1998, 86. [↑](#)

125. Holub BJ, "Fish oils and cardiovascular disease," CMAJ 1989, 141:1063; Connor WE, "The importance of n-3 fatty acids in health and disease," Am J Clin Nutr 2000; 71 (1 Suppl): 171S-5S; Angerer P, von Schacky C., "n-3 Polyunsaturated fatty acids and the cardiovascular system," Curr Opin Lipidol 2000; 11 (1): 57-63. [↑](#)

126. Archives of General Psychiatry, October 2002; 59: 913-919.

PORK AND ITS HARMFUL EFFECTS ON HEALTH

He has only forbidden you carrion, blood and pork and what has been consecrated to other than Allah. But anyone who is forced to eat it-without desiring it or going to excess in it-commits no crime. Allah is Ever-Forgiving, Most Merciful. (Qur'an, 2:173)



Eating pork is harmful to health in a great many regards. This harm still persists today, despite all the precautions that are taken. First and foremost, no matter how clean the farms and environments on which it is raised may be, the pig is not by nature a clean-living animal. It often plays in, and even eats, its own excrement. Due to this and its biological structure, the pig produces much higher levels of antibodies in its body than other animals. In addition, far higher levels of growth hormone are produced in the pig compared to those in other animals and human beings. Naturally, these high levels of antibodies and growth hormone pass across to and collect in the pig's muscle tissue.

Pork meat also contains high levels of cholesterol and lipids. It has been scientifically proven that these significant amounts of antibodies, hormones, cholesterol and lipids in pork represent a serious threat to human health.

The existence of above-average numbers of obese individuals in the populations of countries such as the USA and Germany, in which large quantities of pork are consumed, is now well-known. When exposed to excessive quantities of growth hormone as a result of a pork-based diet, the human body first puts on excessive weight and then suffers physical deformations.

Another harmful substance in pork is the "trichina" worm. This is frequently found in pork and when it enters the human body, it settles directly in the muscles of the heart and represents a possibly fatal threat. Even though it is now technically possible to identify pigs that are infected with trichina, no such methods were known in earlier centuries. That means that everyone who ate pork risked infection by trichina and possible death.

All these reasons are just a part of the wisdom in our Lord's prohibition on the consumption of pork. Moreover, this commandment of our Lord's provides complete protection from the harmful effects of pork under any conditions.

Until the 20th century, it was impossible to be aware of the danger posed to human health by pork. The fact that the Qur'an, revealed fourteen centuries ago, warns against this harm which has been incontrovertibly revealed with modern medical equipment and biological tests, is one of the miracles demonstrating that the Qur'an is the revelation of Allah, the Omniscient. Despite all the precautionary measures and inspections that take place in modern-day pig rearing, the fact that pork is physiologically incompatible with the human body and is a variety of meat harmful to human health has not altered.

THE OLIVE: A HEALTH-GIVING PLANT

One of the foods to which attention is drawn in the Qur'an is the olive. Research in recent years has revealed that the olive is not just a delicious food but also represents an important source of good health. In addition to the olive itself, olive oil is also an important source of nutrition. Attention is drawn to the oil of the olive tree in these terms in the Qur'an:

Allah is the Light of the heavens and the earth. The metaphor of His Light is that of a niche in which is a lamp, the lamp inside a glass, the glass like a brilliant star, lit from a blessed tree, an olive, neither of the east nor of the west, its oil all but giving off light even if no fire touches it. Light upon Light. Allah guides to His Light whoever He wills and Allah makes metaphors for mankind and Allah has knowledge of all things. (Qur'an, 24:35)

The expression "*mubarakatin zaytoonatin*" in the above verse describes the olive as being "plentiful, sacred, auspicious, providing countless blessings." Olive oil, referred to in the term "*zaytuha*," is known as one of the most highly recommended types of oil by all experts, especially for coronary and arterial health. Its health benefits may be summarised as follows:

Benefits for Coronary and Arterial Health:

Most of the fatty acids in olives and olive oil are mono-unsaturated. Mono-unsaturated fatty acids do not contain cholesterol. Therefore, olive oil does not raise cholesterol levels but instead keeps them under control. Olive oil also contains omega-6 linoleic acid (EFA: essential fatty acid), which is essential for the human body. Due to this feature, health-related bodies (such as The World Health Organization) recommend that at least 30% of the fatty acid consumed in societies in which hardened artery and diabetes levels are high should consist of omega-6. This increases the importance of the olive still further.¹²⁷

And by it He makes crops grow for you and olives and dates and grapes and fruit of every kind. There is certainly a Sign in that for people who reflect. (Qur'an, 16:11)

Studies in this area have revealed much lower LDL (bad cholesterol) and higher antioxidant levels in people who consume 25 millilitres (about two dessertspoonfuls) of natural olive oil a day for one week.¹²⁸ Antioxidants are important as they neutralise the harmful substances in the body known as

free radicals and prevent cell damage. It has also been established in a great many studies that the consumption of olive oil reduces cholesterol levels and prevents heart disease.¹²⁹

Olive oil is also recommended for patients with heart and artery disease since it reduces the level of harmful cholesterol (LDL) in the bloodstream and raises that of useful cholesterol (HDL).¹³⁰ In countries with high occurrences of heart and artery diseases, saturated fats with high cholesterol content are generally consumed.

In addition, olive oil does not disrupt the proportion of omega-6 to that of omega-3. It is very important that omega-3 and omega-6 be present in the body at specific levels because any imbalance in these proportions can lead to progression in many diseases, especially those of the heart and immune system and cancer.¹³¹ For all these reasons, many people enjoy good health thanks to olive oil. The American Heart Association suggests that in order to reduce the risk of heart disease high mono-unsaturated fats can be an alternative to a 30% reduced fat diet.¹³²

Cancer Prevention

One study, published by *The Archives of Internal Medicine*, showed that women who consume high levels of mono-unsaturated fat have a lower risk of developing breast cancer.¹³³ Another study by scientists at the University at Buffalo, The State University of New York demonstrated that b-sitosterol, a fat found in vegetable oils such as olive oil, helps prevent the formation of prostate cancer cells. The researchers concluded that b-sitosterol strengthens the internal communication system of the cell that issues the command for the cells to divide and that cancer can thus be prevented before cell division reaches an uncontrollable level.

A recent study by doctors at the University of Oxford has shown that olive oil has a protective effect against intestinal cancer. The doctors discovered that olive oil enters into a reaction with stomach acid in order to prevent intestinal cancer from beginning. At the same time, the University of Oxford researchers also established that olive oil reduces the level of bile and raises that of DAO (the enzyme diamine oxidase), thus protecting against abnormal cell growth and cancer.¹³⁴

Prevention of Arthritis

According to researchers' reports, people who consume large quantities of olive oil and cooked vegetables can have a reduced risk of rheumatic arthritis, a chronic inflammatory disease of the joints.

Olive Oil Assists Bone Development

The vitamins E, A, D and K contained in olive oil are particularly important from the point of view of assisting bone development in adults and children, and in strengthening the bones by fixing calcium. It is also recommended for the elderly as it is easily digested and through its minerals, it assists with the use of vitamins in the body. It also prevents calcium loss by stimulating bone mineralisation.¹³⁵ Bones are the organism's mineral structure storehouses and an absence of mineral accumulation in the bones can lead to serious complications such as bone softening. Olive oil has a most beneficial effect on the skeleton in this regard.

Prevention of Aging

Since the vitamins contained in olive oil have a cell renewing effect they are also employed in the treatment of the elderly, as well as nourishing and protecting the skin. As foodstuffs are transformed into energy in our bodies, certain substances known as oxidants are formed. With the high levels of anti-oxidants it contains, olive oil prevents damage by harmful substances, renews our cells and delays aging in the tissues and organs. Olive oil is also rich in vitamin E, which suppresses the free radicals that destroy the cells in our bodies and cause aging.



Contribution to Child Development

Due to the linoleic acid (omega-6 fatty acid) contained in olives and olive oil, these are a most healthy food for newborn babies and growing children. A

deficiency in linoleic acid leads to the emergence of a retardation of development in babyhood and various skin disorders.

Olive oil contains anti-oxidant elements that prevent the destructive effects of harmful substances in our bodies, and fatty acids of great importance to human health. These support the hormones and assist in cell membrane formation.

Olive oil possesses a balanced polyunsaturated compound at a similar level to that in human milk. Olive oil is a sufficient source of these fatty acids, which cannot be obtained from the human body but which are of the most essential importance to it. These factors make olive oil very important for new-born babies.

Since it contributes to the natural development of the baby's brain and nervous system before and after birth, olive oil is the only oil recommended for mothers by experts. As well as containing similar levels of linoleic acid to those of mother's milk, when olive oil is added to fatless cow's milk, it becomes as natural a food source as mother's milk itself.

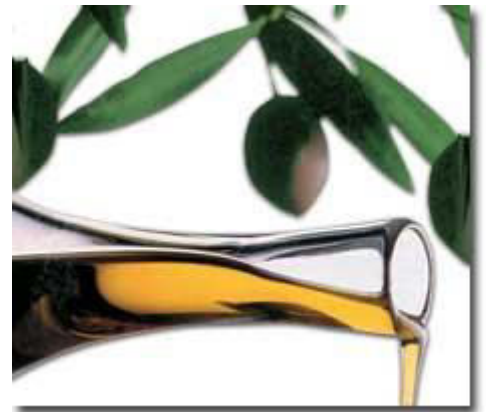
Blood Pressure Reduction

One study published in the 27 March 2000 edition of Archives of Internal Medicine once more stressed the beneficial effect of olive oil on high blood pressure. Medicines to reduce high blood pressure are also made from olive leaves.

Benefits for the Internal Organs

Whether consumed hot or cold, olive oil protects the stomach against diseases such as gastritis and ulcers by reducing gastric acid levels.¹³⁶ In addition to this, by activating the bile, it makes it perfect. It regulates the discharge of the gall bladder and reduces the risk of bile stone formation.¹³⁷ Moreover, thanks to the chloride it contains, it also assists the functioning of the liver and thus helps the body eliminate waste products. In addition, it also has a beneficial effect on the brain arteries.¹³⁸

On account of all these properties, olive oil has attracted considerable expert attention in recent years.¹³⁹ Some of the comments made by experts are as follows:



Jean Carper, a prominent authority in the field of health and nutrition, the CNN award-winning correspondent, columnist and author of *The Food Pharmacy and Food-Your Miracle Medicine*:

New Italian research finds olive oil contains antioxidants... that combat disease processes, including LDL cholesterol's ability to clog arteries.

Pat Baird, a dietician and nutrition consultant:

I love the whole idea of olive oil's versatility... the more we know about it, the more we learn about its great contribution to good health.

Dr. Dimitrios Trichopoulos, chairman of the Department of Epidemiology, Harvard University School of Public Health:

American women might actually experience as much as a fifty percent (50%) reduction in breast cancer risk if they consumed more olive oil in place of saturated fats.

Olive oil has a protective effect against some types of malignant tumors: prostate, breast, colon, squamous cell, and oesophageal.

D. Peck of the School of Medicine, University of Miami:

Olive oil has been shown to strengthen the immune system in mice...

Bruno Berra of the Institute of General Physiology and Biological Chemistry, University of Milan:

... [T]he minor polar components of extra virgin olive oil increase significantly the resistance of LDL to oxidation.

A.A. Rivellesse, G. Riccardi and M. Mancini of the Institute of Internal Medicine and Metabolic Diseases at Federico II University, Naples:

Olive oil prevents insulin resistance and ensures better control of the glucose in the blood.

Patrizia Galletti of the Second University of Naples, Faculty of Medicine and Surgery:

Dietary intake of olive oil polyphenols may lower the risk of reactive oxygen metabolite-mediated diseases such as some gastrointestinal diseases and atherosclerosis. Olive oil hydroxytyrosol protects human erythrocytes against oxidative damage.



Frank Sacks of the Harvard School of Public Health:

An olive-oil-rich diet is more effective than a low-fat diet in controlling and treating obesity. Moreover, it leads to longer-lasting weight loss and it is easier to keep to...

As we have seen, a great many scientists today think that an olive oil-based diet constitutes the ideal nutritional model. It is stated that on account of these properties, olives and olive oil should be the fundamental constituents of every meal in one's daily nutrition programme. The benefits of the olive plant, emphasised by Allah in many verses of the Qur'an, have been discovered in parallel to the advances made by medical science.

It is He Who sends down water from the sky. From it you drink and from it come the shrubs among which you graze your herds. And by it He makes crops grow for you and olives and dates and grapes and fruit of every kind. There is certainly a Sign in that for people who reflect. (Qur'an, 16:10-11)

127. Scientific Encyclopedia, 207. [↑](#)

128. European Journal of Clinical Nutrition, April 2002, 56: 114-120. [↑](#)

129. Archives of Internal Medicine 1998; 158: 1181-1187. [↑](#)

130. Keys A, Menotti A, Karvonen MJ et al., "The diet and 15-year death rate in the Seven Countries Study," Am J Epidemiol 124: 903-915 (1986); Willett WC, "Diet and coronary heart disease," Monographs in Epidemiology and Biostatistics 15: 341-379 (1990); World Health Organization, "Diet, nutrition, and the prevention of chronic diseases," Report of a WHO Study Group. WHO Technical Report Series 797, Geneva 1990. [↑](#)

131. www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12442909&dopt=Abstract. [↑](#)

132. Journal of the American Heart Association, September 1999. [↑](#)

133. Archives of Internal Medicine 1998; 158: 41-45. [↑](#)

134. American Journal of Clinical Nutrition 1999; 70: 1077-1082. [↑](#)

135. Ibid. [↑](#)

136. Muammer Kayahan, "Saglikli Yasam ve Zeytinyagi," (Healthy Life and Olive Oil) Bilim Teknik Dergisi (Journal of Science and Technology), April 1995, 48. [↑](#)

137. Ibid. [↑](#)

138. Ibid. [↑](#)

139. The Olive Tree World, www.olivetree.eat-online.net/framehealth.htm.

CORONARY BY-PASS SURGERY

Did We not open up and expand your breast for you and remove your load from you which weighed down your back? Did We not raise your renown high? For truly with hardship comes ease; truly with hardship comes ease. (Qur'an, 94:1-6)

In order for it to survive and function, every organ needs to be nourished by means of the blood. Blood flows to the heart through the coronary artery. In cases of hardening of the arteries (atherosclerosis), narrowing and blockages can arise in these arteries. When the condition progresses, the passage of the blood is obstructed and the heart receives insufficient supply. This leads to chest pains, which show that the heart is unable to function properly and also to heart attacks.

The expression "***Alam nashrah laka sadraka***" in the above verse-translated as "**Did we not open up and expand your breast for you...**"-may be a sign of heart disorders of this kind and present-day coronary by-pass surgery. (Allah knows best.) That is because the first meaning of the term "***lam nashrah***" expresses the verb "to cut open flesh and similar substances." Indeed, in such operations, the heart is accessed by splitting the breastbone in two. As a result of the operation, the blood is enabled to flow again and chest pain is eliminated. The term "expand" in the above verse may be a sign of the removal of such congestion of the arteries.

Furthermore, it is most wise that immediately after this Sura Allah should swear by the olive, which is so beneficial to the heart. (Qur'an, 95:1)

HEALTH BENEFITS OF MOVEMENT, WASHING AND DRINKING WATER

One of the forms of behaviour noted in the Qur'an is concealed in a revelation vouchsafed to the Prophet Ayyub (as):

Remember Our servant Ayyub when he called on his Lord: "Satan has afflicted me with exhaustion and suffering." "Stamp your foot! Here is a cool bath and water to drink." (Qur'an, 38:41-42)

One of the pieces of advice given to the Prophet Ayyub (as) by Allah in the face of the exhaustion and suffering inflicted by Satan is "stamping the foot." This expression in the verse may be indicating the benefits of movement or sport.

During sport, blood flow is accelerated, particularly by the movement of long muscles such as those in the legs (isometric movements) and the level of oxygen reaching the cells increases. As a result, the individual's fatigue is eliminated and he or she is energised as toxic substances are expelled from the body.¹⁴⁰ At the same time, the body acquires increased resistance to microbes. People who take regular exercise possess broad, clean arteries and this has the effect of preventing them from clogging and thus of preventing heart disease.¹⁴¹ In addition, regular exercise plays a role in the prevention of diabetes by regularising the blood sugar balance. The beneficial effects of sport on the liver raise the levels of good cholesterol.¹⁴²

What is more, walking barefoot is a very effective method of releasing the static electricity accumulated by the body. It serves as a kind of earthing of the body.

It is He Who sends down water from the sky. From it you drink and from it come the shrubs among which you graze your herds.
(Qur'an, 16:10)

As emphasised in the verse, washing is also known to be the most effective method of discharging the static electricity in the body. In addition to providing physical cleanliness, washing also reduces stress and tension. Washing therefore has a curative effect on many physical and psychological disorders, especially stress and fevers.

In the verse, in addition to washing, drinking water is also recommended. The beneficial effects of water on all organs of the body cannot be ignored. The health of many organs-such as the sweat glands, the stomach, the intestines, the kidneys and the skin-is directly related to the presence of adequate amounts of water in the body. The treatment of all such disorders, as may arise in this field,

is possible by means of providing extra water. The answer to fatigue, tiredness and drowsiness is again to increase the level of water in the body and thus to cleanse it of impurities.

Implementing each of these recommendations, of vital importance to our physical and mental health, will bring about the ideal results. Each of these recommendations is also a manifestation of the verse **"We send down in the Qur'an that which is a healing and a mercy to the believers..."** (Qur'an, 17:82)

140. Prof. Fehmi Tuncel, Bilim Teknik Dergisi (Journal of Science and Technology), January 1993. [↑](#)

141. Barbara A. Brehm, "Your Health and Fitness," Fitness Management Magazine, 1990. [↑](#)

142. Kathleen Mullen, Some Benefits of Exercise (Medical Times C. Brown Publishers: 1986)

THE EXISTENCE OF MICROSCOPIC LIFE

Glory be to Him Who created all the pairs: from what the earth produces and from themselves and from things unknown to them. (Qur'an, 36:36)

... And He creates other things you do not know. (Qur'an, 16:8)



The above verses indicate the existence of life forms unknown to people at the time of the revelation of the Qur'an. Indeed, with the discovery of the microscope, new living things too small to be seen with the naked eye have also been discovered by man. People have therefore begun to learn about the existence of these life forms, indicated in the Qur'an. Other verses which point to the existence of micro-organisms, which are invisible to the naked eye and generally consist of a single cell, read:

... He is the Knower of the Unseen, Whom not even the weight of the smallest particle eludes, either in the heavens or in the earth; nor is there anything smaller or larger than that which is not in a Clear Book. (Qur'an, 34:3)

... Not even the smallest speck eludes your Lord, either on earth or in heaven. Nor is there anything smaller than that, or larger, which is not in a Clear Book. (Qur'an, 10:61)

There are 20 times more members of this secret world, which is spread all over the planet, micro-organisms in other words, than there are animals on Earth. These micro-organisms, invisible to the naked eye, comprise bacteria, viruses, fungi, algae and Acarina (mites and ticks). They also constitute an important element in the balance of life on Earth. For example, the nitrogen cycle, one of the fundamental components of the formation of life on Earth, is made possible by bacteria. Root fungi are the most important element in plants being able to take up minerals from the soil. The bacteria on our tongues prevent us being poisoned by food containing nitrates, such as salad stuffs and meat. At the same time, certain bacteria and algae possess the ability to make photosynthesis, the fundamental element in life on Earth, and share that task with plants. Some members of the Acarina family decompose organic substances and turn them into foodstuffs suitable for plants. As we have seen, these tiny life forms, about which we have only learned with modern technological equipment, are essential to human life.

Fourteen centuries ago, the Qur'an indicated the existence of living things beyond those which can be seen with the naked eye. This is another spectacular miracle contained within the verses of the Qur'an.

THE EXISTENCE OF ANIMAL SOCIETIES

There is no creature crawling on the earth or flying creature, flying on its wings, who are not communities just like yourselves... (Qur'an, 6:38)

As a result of modern-day animal and bird ecology study, we know that all animals and birds live in the form of separate



societies. Lengthy and wide-ranging studies have shown that there is a rather systematic social order among animals.

Honey bees, for example, whose social life amazes scientists, build their nests in colonies in tree hollows or other covered areas. A bee colony consists of a queen, a few hundred males and 10-80,000 workers. As we have already mentioned, there is only one queen in every colony and her fundamental task is that of laying eggs. In addition, she secretes important substances which maintain the unity of the colony and allow the system within the hive to function. The males' only function is to fertilise the queen. All other functions-such as building honey combs in the hive, gathering food, creating royal jelly, regulating the temperature of the hive, cleanliness and defence-are carried out by the workers. There is order in every phase of life in the hive. All duties, from caring for the larvae to provision of the general needs of the hive, are performed without fail.

Despite having the greatest numbers in the world, ants also exhibit an order which can serve as an example to human beings in many areas: technology, collective labour, military strategy, an advanced communications network, a hierarchical order, discipline and flawless town planning. Ants live in societies known as colonies and in such order amongst themselves that one could even say that they have a civilisation similar to that of human beings.



As ants produce and store their food, they also watch over their young, defend the colony and wage war against their enemies. There are even colonies which engage in "sewing," "agriculture" and "animal rearing." These animals have a very powerful communications network amongst themselves. Their social organisation and expertise are far superior to any other living thing. (See Harun Yahya, *The Miracle in the Ant*, Goodword Books, 2001)

Communal animals with ordered lives also operate together in the face of danger. For instance, when birds of prey such as hawks or owls enter the area, smaller birds surround these birds en masse. They then produce a special sound to draw other birds to the area. The aggressive behaviour displayed by small birds en masse generally drives birds of prey away.¹⁴³

A flock of birds flying together protects all its members in the same way. For instance, a flock of starlings flying together leave a wide distance between one another. When they see a hawk, however, they close the distance between them. They thus make it harder for the hawk to dive in amidst the flock. Even if the hawk does so, it will be acting to its own detriment. Its wings will be damaged and it will be unable to hunt.¹⁴⁴ Mammals also act in consort when there is an attack on the group. For example, zebras take their young into the middle of the herd when they flee from enemies. Dolphins also swim in groups and fight off their greatest enemy, sharks, as a group.¹⁴⁵

There are countless examples of and a great many details concerning the social lives of animals. These facts acquired about animals are the result of long years of research. As we have seen, the information about animals given in the Qur'an-as in all areas-shows that the book of Islam is indeed the Word of Allah.

143. Edward O. Wilson, *Sociobiology: The New Synthesis* (England: The Belknap Press of Harvard University Press: 1975), 123. [↑](#)

144. Russell Freedman, *How Animals Defend Their Young* (USA: Penguin USA: 1978), 69. [↑](#)

145. *Ibid.*, 66-67. [↑](#)

BIOMIMETICS: DRAWING INSPIRATION FROM THE DESIGN IN LIVING THINGS

There is instruction for you in cattle. From the contents of their bellies, from between the dung and blood, We give you pure milk to drink, easy for drinkers to swallow. (Qur'an, 16:66)

And there is certainly a lesson for you in your livestock. We give you to drink from what is in their bellies and there are many ways in which you benefit from them, and some of them you eat; and you are conveyed on them and on ships as well. (Qur'an, 23:21-22)

Before scientists and research and development experts embark on new projects, they usually look for models in living things and imitate their systems and designs. In other words, they see and study the designs created in nature by Allah and, inspired by these, go on to develop their own new technologies.



This approach has given birth to biometrics, a new branch of science that seeks to imitate living things. In recent times, this branch of science has come to be widely applied in the world of technology.

The use of the word "*ibratan*," (to learn from, advice, importance, important thing, or model) in the above verses is most wise in this regard.

Biomimetics refers to all of the substances, equipment, mechanisms, and systems that people produce in order to imitate the systems present in nature. The scientific community currently feels a great need for the use of such equipment, particularly in the fields of nanotechnology, robot technology, artificial intelligence, medicine, and the military.

Biomimicry was first put forward by Janine M. Benyus, a writer and scientific observer from Montana. This concept was later analysed by many other people and began to find applications. Some of the comments made regarding biomimicry are as follows:

The theme of "biomimicry" is that we have much to learn from the natural world, as model, measure, and mentor. What these researchers have in common is a reverence for natural designs, and the inspiration to use them to solve human problems.¹⁴⁶

David Oakey, product strategist for Interface Inc., a company that uses nature to increasing product quality and productivity, says:

Nature is my mentor for business and design, a model for the way of life. Nature's system has worked for millions of years ... Biomimicry is a way of learning from nature.¹⁴⁷

Scientists who began to favour this rapidly spreading idea accelerated their studies by using nature's incomparable and flawless designs as models. These designs represent models for technological research, for they provide the maximum productivity for the least amount of materials and energy, and are self-maintaining, environmentally friendly, silent, aesthetically attractive, resistant, and long-lasting. *The High Country News* newspaper described biomimetics as "a scientific movement" and made the following comment:

By using natural systems as models, we can create technologies that are more sustainable than those in use today.¹⁴⁸

Janine M. Benyus, who believed that models in nature should be imitated, gave the following examples in her book, *Biomimicry: Innovation Inspired by Nature* (Perennial: 2002):

- Hummingbirds cross the Gulf of Mexico on less than 3 grams (one tenth of an ounce) of fuel,
- Dragonflies outmanoeuvre our best helicopters,
- Heating and air-conditioning systems in termite mounds are superior in terms of equipment and energy consumption to those made by human beings,
- A bat's high-frequency transmitter is more efficient and sensitive than our own radar systems,
- Light-emitting algae combine various chemicals to illuminate their bodies,
- Arctic fish and frogs freeze solid and then spring to life, having protected their organs from ice damage,
- Chameleons and cuttlefish change the pattern of their skin to blend instantly with their surroundings,
- Bees, turtles, and birds navigate without maps, and
- Whales and penguins dive without scuba gear.

These astonishing mechanisms and designs in nature, of which we have cited only a few, have the potential to enrich technology in a wide range of fields. This potential is becoming ever more obvious as our accumulated knowledge and technological means increase.

All animals possess many features that amaze human beings. Some have the ideal hydrodynamic shape that allows them to move through water, and others employ senses that appear very foreign to us. Most of these are features that researchers have encountered for the first time, or, rather, that they have only recently discovered. On occasion, it is necessary to bring together prominent scientists from such fields as computer technology, mechanical engineering, electronics, mathematics, physics, chemistry, and biology in order to imitate just one feature of a living thing.

Scientists are amazed when confronted with the incomparable structures and systems they are discovering with every passing day, and use that amazement to inspire themselves to produce new technologies for humanity's benefit. Realising that the existing perfect systems and extraordinary techniques applied in nature are far superior to their own knowledge and intellect, they became aware of these matchless solutions to existing problems and are now resorting to the designs in nature to resolve problems that have eluded them for years. As a result, they will perhaps achieve success in a very short time. Moreover, by imitating nature, scientists are making very important gains with regard to time and labour and also to the targeted use of material resources.

Today we see the developing technology gradually discovering the miracles of creation and using the extraordinary designs in living things, as in the case of biomimetics, in the service of humanity. Benyus has stated that "'Doing it nature's way' has the potential to change the way we grow food, make materials, harness energy, heal ourselves, store information, and conduct business."¹⁴⁹ The following are just a few of the many scientific papers to have considered such subjects:

"Science is Imitating Nature,"¹⁵⁰

"Life's Lessons in Design,"¹⁵¹

"Biomimicry: Secrets Hiding in Plain Sight,"¹⁵²

"Biomimicry: Innovation Inspired by Nature,"¹⁵³

"Biomimicry: Genius That Surrounds Us,"¹⁵⁴

"Biomimetics: Creating Materials from Nature's Blueprints,"¹⁵⁵ and

"Engineers Ask Nature for Design Advice."¹⁵⁶

In the nineteenth century, nature was imitated only in aesthetic terms. Artists and architects of that time were influenced by nature and used examples of the structures' external appearances in their works. Yet the realisation of nature's extraordinary designs and that these could be used to benefit human beings only began in the twentieth century with the study of natural mechanisms at the molecular level. Scientists today are learning from living things, as revealed in the Qur'an 1,400 years ago.

146. Frederick Pratter, "Stories from the Field Offer Clues on Physics and Nature," Christian Science Monitor, www.biomimicry.org/reviews_text.html. [↑](#)

147. "Biomimicry," www.bfi.org/Trimtab/spring01/biomimicry.htm. [↑](#)

148. Michelle Nijhuis, High Country News, 6 July 1998, vol. 30, no. 13, www.biomimicry.org/reviews_text.html. [↑](#)

149. "Biomimicry Explained: A Conversation with Janine Benyus," www.biomimicry.org/faq.html. [↑](#)

150. Bilim ve Teknik Dergisi (Journal of Science and Technology) (August 1994): 43. [↑](#)

151. Philip Ball, "Life's lessons in design," Nature 409 (2001): 413-16, www.nature.com/cgi-taf/DynaPage.taf?file=/nature/journal/v409/n6818/full/409413a0_fs.html&filetype=&_UserReference=C0A804EF465069D8A41132467E093F0EDE99. [↑](#)

152. "Biomimicry: Secrets Hiding in Plain Sight," NBL (New Bottom Line) 6, no. 22, 17 November 1997, www.natlogic.com/resources/nbl/v06/n22.html. [↑](#)

153. Janine M. Benyus, Biomimicry: Innovation Inspired by Nature (New York: William Morrow and Company, Inc.: 1998), www.biomimicry.org/reviews_text.html. [↑](#)

154. Ed Hunt, "Biomimicry: Genius that Surrounds Us," Tidepool editor, www.biomimicry.org/reviews_text.html. [↑](#)

155. Robin Eisner, "Biomimetics: Creating Materials from Nature's Blueprints," The Scientist, 8 July 1991, www.the-scientist.com/yr1991/july/research_910708.html. [↑](#)

156. Jim Robbins, "Engineers Ask Nature for Design Advice," New York Times, 11 December 2001.

LOCUSTS MOVING IN SWARMS

They will emerge from their graves with downcast eyes, like swarming locusts. (Qur'an, 54:7)

This verse describes all people's situation in the Hereafter as one resembling swarming locusts. There is great wisdom in this simile.



A great deal of information was obtained about locusts in the twentieth century by conducting wide-ranging studies using micro-cameras. Locust swarms contain huge numbers of individual locusts that behave as a single body. Coming together in swarms that are kilometres long and wide, they look just like a dark cloud. It has been established, for instance, that a single swarm of desert locusts can cover 1,200 square kilometres (460 square miles) and contain between 40 and 80 million locusts per square kilometre.¹⁵⁷

In addition, they deposit their eggs in sandy soils like seeds and, after the larvae have remained underground for a long period of time, they all emerge together. After digging a 10-15 cm-long tunnel in the ground, a female locust lays 95-158 eggs at once. Females can lay eggs at least three times in their lifetime. When the larvae have matured after 10-65 days, depending on the air temperature, they emerge in a large group. Up to 1,000 egg pods have been found in one square metre. Locust swarms are large enough to cover several hundred square kilometres, with the number of adult locusts per square kilometre varying from between 40 to 80 million.¹⁵⁸ Their long underground existence and sudden emergence in vast numbers all at the same time may resemble the resurrection of human beings on the Day of Judgement. (Allah knows best.)

Today, locusts are being studied by special units, which employ remote control imaging systems. Even NASA satellite data are used to identify areas in Africa where desert locust colonies have developed. Thanks to satellite data, it is possible to carry out wide-ranging research on land and in space over an 18 million square kilometre area.

As we have seen, the fact that the Qur'an made such a comparison at a time when these technologies did not exist is one of the proofs that it is the revelation of the Omniscient Allah.

¹⁵⁷. "The Reach of the Desert Locust," <http://earthobservatory.nasa.gov/Study/Locusts/locusts2.html>. 

¹⁵⁸. Frequently Asked Questions, Desert Locust Information Service, www.fao.org/NEWS/GLOBAL/LOCUSTS/LOCFAQ.htm#q5. 

ANT COMMUNICATION

The Qur'an indicates, when recounting Prophet Sulayman's (as) life, that ants have a communication system:

Then, when they reached the Valley of the Ants, an ant said: "Ants! Enter your dwellings, so that Sulayman and his troops do not crush you unwittingly." (Qur'an, 27: 18)

Scientific research into ants has revealed that these tiny animals have very organised social lives and that, as a requirement of that organisation, they also have a very complex communication network. For example, **National Geographic** reports that:

Huge and tiny, an ant carries in her head multiple sensory organs to pick up chemical and visual signals vital to colonies that may contain a million or more workers, all of which are female. The brain contains half a million nerve cells; eyes are



compound; antennae act as nose and fingertips. Projections below the mouth sense taste; hairs respond to touch.¹⁵⁹

Even if we are not aware of it, ants use a variety of methods to communicate, thanks to their very sensitive sensory organs. They use these organs at all times, from finding prey to following one another, and from building their nests to waging war. With 500,000 nerve cells squeezed into their 2-3 mm bodies, they possess a communications system that astonishes human beings.



The reactions in their communications have been divided into several specific categories: alarm, recruitment, grooming, exchange of oral and anal liquid, group effect, recognition, caste determination...¹⁶⁰ Ants, which establish an ordered society by means of these reactions, live a life based on the mutual exchange of information. To bring about this exchange, they sometimes exhibit more flawless communication in areas that human beings often cannot resolve through speech, such as coming together, sharing, cleaning, and defence.

Ants mainly communicate on the chemical level. These semiochemicals, known as pheromones, are chemical compounds that are perceived by smell and secreted by internal glands. In addition, they play the most important role in organising ant societies. When an ant secretes a pheromone, the other ants receive it by means of smell or taste and duly respond. Research into ant pheromones has revealed that all signals are emitted according to the needs of the colony. Moreover, the intensity of the pheromone emitted also varies according to the urgency of the situation at hand.¹⁶¹

As we have seen, ants require a profound knowledge of chemistry to do what they do. The fact that the Qur'an emphasized this fact 1,400 years ago, a time when there was no such knowledge about ants, is another one of its scientific miracles.

159. National Geographic 165, no. 6, 777. [↑](#)

160. Bert Hölldobler and Edward O. Wilson, *The Ants* (Cambridge: Harvard University Press: 1990), 227. [↑](#)

161. *Ibid.*, 244. [↑](#)

THE FOOD CYCLE

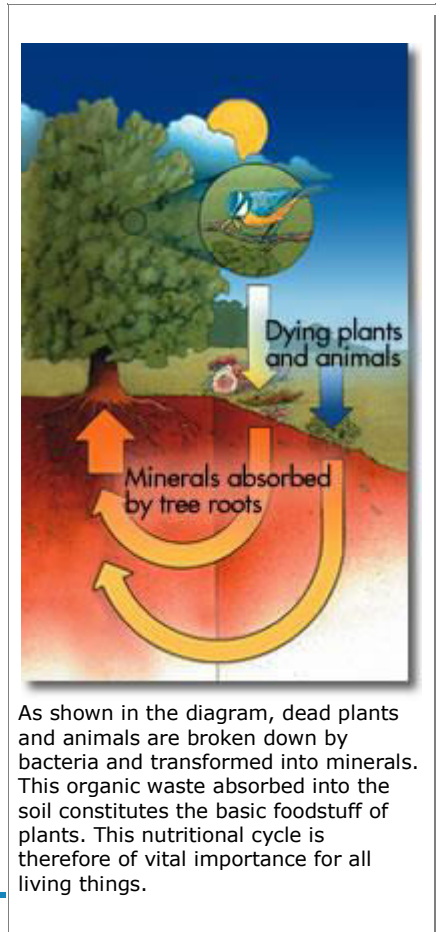
Allah splits the seed and kernel. He brings forth the living from the dead, and produces the dead out of the living. That is Allah, so how are you misguided? (Qur'an, 6:95)

In the above verse, our attention is drawn to a food cycle of which people at the time of the Qur'an's revelation could have known nothing.

When a living thing dies, micro-organisms quickly cause it to decompose. The dead body is thus divided up into organic molecules that mix with the soil and form the basic source of food for plants, animals, and, ultimately, humanity. Were it not for this nutritional cycle, life would not be possible.

Bacteria are responsible for meeting all living things' mineral and food needs. Plants and some animals, which remain almost dead (hibernation) throughout the winter, revive in the summer and meet all of their mineral and food requirements through the activities of bacteria during the winter. Throughout the winter, bacteria separate organic wastes (i.e., dead plants and animals) and turn them into minerals.¹⁶² Thus, when living things reawaken in spring, they find food ready and waiting for them. Thanks to bacteria, a "spring cleaning" has been carried out in their environment and the necessary amount of food has been prepared for nature as it returns to life in the spring.

As we have seen, dead creatures play a vital role in the emergence of new ones. This transition, indicated in the Qur'an as "**He brings forth the living from the dead, and produces the dead out of the living,**" is carried out in the most perfect manner. This is one of the proofs that the Qur'an is the Word of Allah.



162. Bilim ve Teknik (Science and Technology) 234 (May 1987) 17.



THE EARS ARE ACTIVE DURING SLEEP

So We sealed their ears [with sleep] in the cave for a number of years. (Qur'an, 18:11)

The original Arabic of the phrase "We sealed their ears" in the Qur'an is the verb daraba. This bears the metaphorical meaning of "We have made them sleep." Used in reference to the ears, daraba means "preventing the ears from hearing." The fact that only the sense of hearing is mentioned here is very significant.

According to recent scientific discoveries, the ear is the only sensory organ active while a person is sleeping. This is why we need an alarm clock to wake up.¹⁶³ The wisdom of the phrase "**We sealed their ears**" is, in all probability, that Allah closed the hearing of the young people in question, for which reason they remained asleep for many years.

163. Kazi, 130 Evident Miracles in the Qur'an, 108. [↑](#)

THE IMPORTANCE OF MOVEMENT IN SLEEP

You would have supposed them to be awake, whereas in fact they were asleep. We moved them to the right and to the left, and, at the entrance, their dog stretched out its paws. If you had looked down and seen them, you would have turned from them and run, and have been filled with terror at the sight of them. (Qur'an, 18:18)

The above verse refers to the People of the Cave, who remained asleep for hundreds of years. In addition, Allah also reveals that He moved their bodies to the left and right. The wisdom of this was only discovered in recent times.

People who remain lying down in the same position for long period of time encounter serious health problems, such as circulation difficulties, sores, and blood clotting in that part of the body in contact with the surface on which they lie.¹⁶⁴

The resulting sores are known as "bed sores" or "pressure sores." Due to the constant pressure on one part of the body when one is not moving for a long period of time, the blood vessels become constricted and can close altogether. As a result, the oxygen and other nutrients carried by the blood fail to reach the skin, and the skin begins to die. This leads to the appearance of sores on the body. Unless these sores are treated, fat and muscles can also die.¹⁶⁵



These sores, which form under the skin or tissue, can assume serious dimensions unless treated. If they become infected, they can even lead to death. The healthiest thing to do, therefore, is to change the position of the body every 15 minutes in order to reduce this pressure. Patients who cannot move themselves therefore receive special care and are moved every 2 hours by other people.¹⁶⁶ The fact that these medical facts, only discovered in the last century, are referred to in the Qur'an is yet another of its miracles.

164. Ibid. [↑](#)

165. Treating Pressure Sores (Agency for Health Care Policy and Research: 1994). [↑](#)

166. Kenneth Davis, Jr., et al. "The Acute Effects of Body Position Strategies and Respiratory Therapy in Paralyzed Patients with Acute Lung Injury," Critical Care 5 (2001): 81-87, www.biomedcentral.com/1364-8535/5/81/abstract. [↑](#)

REDUCED MOVEMENT AT NIGHT

He splits the sky at dawn, and appoints the night as a time of stillness and the Sun and Moon as a means of reckoning. (Qur'an, 6:96)



The Arabic word *sakanan*, which appears in the original of the above verse, means "repose, rest, time to withdraw to rest, time for a break." As indicated by Allah, night is the time when human beings rest. The hormone melatonin, secreted at night, prepares the body for sleep by slowing down peoples' physical movements, making them sleepy and tired, and functioning as a natural tranquilliser that eases their minds.¹⁶⁷ During sleep, heartbeat and respiration rhythms slow down and blood pressure falls. In the morning, the production of the hormones stops and the body is stimulated to awaken.¹⁶⁸

At the same time, sleep allows the body's muscles and tissues to repair themselves and the body to replace old or dead cells. Since energy expenditure is reduced during sleep, the body stores energy throughout the night. Several chemicals vital for the immune system and growth hormones are also secreted during sleep.¹⁶⁹

In the event that people fail to get enough sleep, therefore, the immune system is immediately affected and the body becomes more susceptible to sickness. If people are unable to sleep for two nights, they will find it harder to concentrate and their error levels will rise. If they are deprived of sleep for three nights, they will begin to hallucinate and be unable to think logically.¹⁷⁰

Night is as much a time for rest for other living things as it is for human beings. This situation, referred to by Allah in the verse "**the night as a time of stillness**," indicates a fact that cannot be observed by the naked eye: Many activities that take place during the day slow down and rest during the night. In plants, for instance, perspiration in leaves and photosynthesis begin to rise when the sun rises. In

the afternoon, the situation is reversed. In other words, photosynthesis slows down and respiration increases, because perspiration is accelerated as the temperature rises. At night time, as the temperature falls, perspiration slows down and the plant rests. Most plants would die if just one night failed to take place. From that point of view, night means rest and reinvigoration for plants, just as it does for human beings.¹⁷¹

Movement at the molecular level also declines at night. The radiation emitted by the Sun during the day activates the atoms and molecules in Earth's atmosphere and causes them to achieve higher energy levels. As darkness falls, the atoms and molecules fall to lower energy levels and start to give off radiation.¹⁷²

These facts are, in all probability, indicated Surat al-An'am 96 and reveal yet another of the Qur'an's countless miracles. (Allah knows best.)

167. "Melatoning the Growth Hormone," Health Journal, www.bodyandfitness.com/Beauty/Anti-Aging/melatonin1.htm. [↑](#)

168. "Melatonin," www.stenlake.com.au/ShowDocument.asp?DocumentId=53. [↑](#)

169. Dr. William H. Philpott, M.D. and Sharon Taplin, "Therapeutic Sleep," www.magneticjewelryoriginals.com/thersleep.html. [↑](#)

170. Marshall Brain, "How Sleep Works," <http://fitness.howstuffworks.com/sleep.htm?printable=1>. [↑](#)

171. "Light, Temperature and Humidity," Texas Agricultural Extension Service, Texas A&M University System College Station, Texas, <http://aggie-horticulture.tamu.edu/greenhouse/nursery/guides/ornamentals/light.html>. [↑](#)

172. "Night-time on Venus", 18 January 2001, <http://beta.physicsweb.org/article/news/5/1/10>.

CHEST CONTRACTION WITH INCREASING HEIGHT

Human beings need oxygen and air pressure in order to live. Breathing is made possible by the oxygen in the atmosphere reaching the air sacs in our lungs. As elevation rises, however, atmospheric pressure goes down as the atmosphere becomes thinner. Therefore, the amount of oxygen entering the blood stream declines and it becomes harder to breathe. As the air sacs grow narrow and contract, we feel as if we cannot breathe.



If the amount of oxygen in the blood is less than the body needs, several symptoms emerge: extreme fatigue, headaches, dizziness, nausea, and loss of judgement. When a certain height is reached, it finally becomes impossible for a human being to breathe at all.¹⁷³ This is why we need oxygen bottles and special clothing in order to survive at such elevations.

Someone at 5,000-7,500 metres (16,500-24,500 feet) above sea-level may faint and go into a coma because of breathing difficulties. That explains the presence of oxygen equipment in airplanes. There are also special systems that regulate air pressure when planes fly at 9,000-10,000 metres (29,500-33,000 feet) above sea-level.

Anoxia occurs when oxygen fails to reach the tissues. This oxygen deficiency occurs at heights of 3,000-4,500 metres (10,000-15,000 feet). Some people even lose consciousness at such elevations, but can be saved by immediate oxygen treatment.

In the comparison made in the verse below, this physical truth, the changes that take place in the chest with increasing height, is indicated in these terms:

When Allah desires to guide someone, He expands his breast to Islam. When He desires to misguide someone, He makes his breast narrow and constricted as if he were climbing up into the sky. That is how Allah defiles those who have no faith. (Qur'an, 6:125)

173. Medical Encyclopedia, Robert Wood Johnson University Hospital Hamilton, www.rwjhamilton.org/Atoz/Encyclopedia/article/000133.asp.

